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THE
PHYSICIAN'S VADEMECUM;
OR
A MANUAL OF THE
PRINCIPLES AND PRACTICE OF PHYSIC;

CONTAINING THE
INSTITUTIONS OF MEDICINE, THE SYMPTOMS, CAUSES,
DIAGNOSIS, PROGNOSIS, AND TREATMENT OF DISEASES,

WITH A SELECT COLLECTION OF FORMULÆ,

BY ROBERT HOOPER, M.D.

New Edition,

CONSIDERABLY ENLARGED AND IMPROVED,

BY MICHAEL RYAN, M.D.

LECTURER ON THE PRACTICE OF MEDICINE AND OBSTETRICY,
PHYSICIAN TO THE METROPOLITAN FREE HOSPITAL,
&c. &c.

LONDON :

HENRY RENSHAW ; WHITTAKER & CO. ; SIMPKIN & CO.
SHERWOOD & CO. ; J. CHURCHILL ; S. HIGHLEY ; T. HILL ;
C. TILT ; HOULSTON & SON ; AND A. AND C. BLACK, EDINBURGH.

1837.



LONDON :

PRINTED BY IBOTSON AND PALMER, SAVOY STREET.

TO
JOHN ELLIOTSON, M.D. CANTAB.
F. R. S.

PROFESSOR OF THE PRINCIPLES AND PRACTICE OF MEDICINE
IN THE LONDON UNIVERSITY COLLEGE, &c. &c.

THIS MANUAL

OF A SCIENCE WHICH OWES MUCH OF ITS RECENT
IMPROVEMENTS TO HIS EXERTIONS,

IS

DEDICATED

AS A TRIBUTE OF RESPECT TO HIS PROFESSIONAL TALENTS,

BY

M. RYAN.

AUTHOR'S PREFACE.

THE following concise account of the several diseases that fall under the province of the Physician was committed to the press, with the hope of its proving useful to students, and those practitioners in medicine who, from their professional occupations, or other circumstances, may not have it in their power to consult the more voluminous works that have contributed so much to the improvement of medicine.

The very extensive sale of the work, and its having been translated into most of the continental languages, induce the Author to believe that his labours have been generally approved.

It has been his object to compress, within a smaller compass than has hitherto been done, consistently with utility, everything which more especially deserves attention with a view to the treatment of diseases. In pursuing this design, he has discarded all theory, and retained only those leading facts with which it is absolutely necessary for a practitioner to be acquainted when he approaches the bedside of his patient.

Under distinct heads are arranged,

1. The characteristic symptoms by which diseases are known.
2. The causes from which they most frequently have their origin.
3. The circumstances that more especially point out the difference between diseases which resemble one another.
4. The signs which influence the judgment in forming a prognosis of their event.
5. That mode of treatment, which, in the present improved state of medicine, is deemed most appropriate, and which experience has sanctioned.

The select collection of Formule, Glossary of Terms,* and the Table showing the Doses of all valuable medicines he employed, will, the Author trusts, combine to render the volume more extensively useful.

Saville-Row, August, 1823.

* The Glossary of Terms has been omitted in this edition.—
M.R.

EDITOR'S PREFACE.

THE very favourable reception of my last edition of this work, and its high approval by the author, the late Dr. Hooper, have induced me to enlarge, and I hope improve, this impression. I have deemed it an essential addition to the work to prefix a Summary of the PRINCIPLES or INSTITUTIONS of MEDICINE, which embrace the rudiments of PHYSIOLOGY, PATHOLOGY and THERAPEUTICS. I have also introduced ETIOLOGY, SYMPTOMATOLOGY and SEMEIOTICS, and given a fuller description of the signs of diseases, than will be found in any work of this size hitherto published in our language, or in any of the elementary treatises on Practical Medicine. The Sections on THERAPEUTICS, on the PRECEPTS for PRESCRIBING, and on CLINICAL MEDICINE, or the mode of examining patients at the bedside, which are now introduced, form an epitome of these branches of science. The article on AUSCULTATION contains the latest conclusions of the illustrious Laennec, and of his most eminent successors, among whom are, Piorry, Bouillaud, Rouanet, Louis, Reynaud, Raciborski, Andral, Forbes, Hope, Corrigan, J. C. B. Williams, Latham, Stokes, Kennedy, Spittal, Haycraft, Graves, Law, Main, the Reporters of the British Association for the advancement of Science, 1836, &c.

The second part of the work, which I have headed NOSOGRAPHY, has undergone careful revision, and I think improvement. The PHYSIOLOGICAL CLASSIFICATION of diseases, which I adopt in my lectures has been prefixed to the Cullenian Nosology, as it more accords with the present state of science. The editorial additions, which far exceed the original text, are placed in brackets, and will

be found in almost every page. The most important of these are a new and more perfect classification of DISEASES of the SKIN, with definitions, and a complete account of the nature and treatment of DISEASES of the HEART, occupying several pages and presenting all that is known on the subject. The works of Corvisart, Laennec, Wardrop, Hope, Bouillaud, and other late writers, have been laid under contribution. Much new matter is also added to the sections on DISEASES of the RESPIRATORY, DIGESTIVE, and GENITO-URINARY ORGANS.

In revising this work, which is an epitome of Practical Medicine, and in very extensive circulation, I have considered it necessary to refer to the latest editions of the most esteemed authors, and to give their opinions and conclusions as concisely as possible. The reader will therefore find the names of distinguished medical authorities on their respective subjects, and in the order which the sections are placed. The following list will show the authors quoted by me in this work: Collin, Laennec, Bouillaud, Raciborski, Graves, Jackson, Maedonnell, Thomson, Parry, Galen, Boerhaave, Hoffman, Cullen, Darwin, Fordyce, F. Home, Heberden, Bourdeau, Rueco, Fischer, Mayor, Jumeau de Kergaradee, Ollivry, Fergusson, Velpeau, Capuron, Ryan, C. Bell, Tiedemann, Gmelin, Vavasseur, M. Edwards, G. Blane, Double, Quain, Cruveilhier, Martinet, Desglanades, Spillan, Armstrong, Bateman, S. Smith, Tweedie, Elliotson, Stokes, Tuomy, O'Brien, Reid, O'Beirne, J. Home, Mackintosh, Alison, Welsh, Sanders, Andral, Louis, Chomel, Rousseau, Richter, Gilkrest, Stevens, Hacket, A. Cooper, S. Cooper, Thomson, Hossack, Rush, Dewees, Willan, Bateman, Alibert, Biett, Rayer, Plumbé, Green, Cazanave, Schlegel, Magendie, Haller, B. Travers, Pinel, Stoll, Morgagni, Abercrombie, Rostan, Copland, Mills, Recamier, Conquest, Murray, Bardsley, Mayo, Currie, Earle, Conolly, Haslam, Lucas, Corvisart, Lancisi, Albertini, Wardrop, Corrigan, Latham, Hope, Baillie, A. Burns, Kreiseg, Senae, Dance, Choisy, Guthrie, Ollivier, Tarral, Sanson, Legroux, Cameron, Chaussier, Breschet, C. Williams,

Uwins, Hamilton, Marsh, Ley, Mouro, Kellie, Chretien, Gannal, Scudamore, Beddoes, Fowler, Willis, Bree, Wilson Philip, Beatty, Billard, Baron, Guersent, Baudeloeque, Van Swieten, Gardien, Underwood, Mackenzie, Bretonneau, Jadelot, Percival, Meckel, Cuvier, Blake, Lèveillé, Roux, Roche, Fothergill, J. Johnson, Gregory, Bates, Kirby, Carmichael, Cheyne,^f Ballingall, Hammett, Russell, Barry, Petit, Husson, Honore, Sanson, Gendrin, Dupuytren, Breschet, Guenneau de Mussy, Emery, Jobert, Lugol, Moury, Gerdy, Richerand, Serres, Clement, Parent, Dechatalet, Lisfranc, Louis, Andral, Velpeau, Kerr, Crampton, Crosse, Bright, Gregory, Christison, Osborne, Wells, Blackall, Darwall, Dobson, Rollo, Sharkey, B. Brodie, Civiale, &c.

The limits by which I was circumscribed in this work have prevented me from introducing a full account of the diseases of the whole physiological systems, as I had wished, and as set forth in my syllabus, because this would have increased the volume to double or treble its present size and price, and have made it an original work, totally different from Dr. Hooper's Vademecum, and no longer a Summary of the Practice of Medicine. Nevertheless, I think it will be found to contain more practical information than any Manual on the same subject either national or foreign.

M. RYAN.

*Charlotte Street, Bloomsbury Square,
London, July, 1837.*

THE PHYSICIAN'S VADEMECUM.

INSTITUTIONS OR PRINCIPLES OF MEDICINE.

THE Universities and Medical Schools of all civilised nations have wisely ordained, that the student of medicine should acquire a correct knowledge of the principles, before he commences the study of the practice of the healing art; and, in accordance with this view, it is deemed right to prefix a concise description of them to a Manual of the Practice of Medicine. These principles are not to be found in a concise form in any English work, and are only to be learned in long-established Universities. It is impossible to describe them fully in a production of this kind; but an imperfect description is better than no description at all. It is an axiom in medicine, that correct theory, or sound principles, are indispensably necessary for the foundation of judicious and successful practice. Every one acquainted with the sanative art will admit the validity of this conclusion. If the practice of medicine, as is very generally and erroneously supposed, consisted in the application of a few certain remedies for the alleviation or removal of diseases, a knowledge of it would be easily acquired; but all the initiated have discovered that its empire is boundless, and that no other science is so important or so valuable to mankind. It comprises almost all the branches of natural science, besides those strictly called medical, in which we find a mass of information collected which few can hope to possess. But the possession of the elementary principles of all the medical sciences is justly expected and required. In proof of our position, we may state that the most renowned and venerated teachers grew old in the study of a single branch of our science, without having fully explored it. Hippocrates, who did more for medicine than any one of his successors, honestly declared, "that he had arrived at the end of life, but not at the end of physic." The truth of his assertion is manifest; for to learn

all that is known in all the branches of medical education is impossible in the very nature of things; but to become acquainted with their Outlines or Elements is in every man's power. Medical practitioners are therefore compelled to acquire a proper knowledge of the facts and principles on which their art is founded, so as to justify the proper authorities in placing their names among those who may, without injury to society, become responsible for the lives and happiness of their fellow-creatures. In order to promote this laudable object, to facilitate the progress of the student, and to remind the practitioner of correct principles, this epitome of the Science and Practice of Medicine has been compiled.

INSTITUTIONS OF MEDICINE.

The Institutions of Medicine include an outline of Physiology, Pathology, and Therapeutics.

Physiology.—The study of the functions of mind and body in health; or the doctrine of the animal economy.

1. *The vital properties or functions.*—1. Sensibility; 2. Contractility; 3. Caloricity; 4. Expansibility; 5. Sympathy; 6. Synergy.

2. *Functions in general.*—*a.* organic; *b.* intellectual. Functions purely organic.—The external sensitive, the internal sensitive; the locomotive, the vocal, the masculine and feminine reproductive; the digestive, the chyloferous absorbent, the circulatory, the respiratory, the exhalent, the secretory, and the general absorbent.

External Sensitive organs.—The eye, ear, nose, palate, and skin.

Internal Sensitive organs.—The brain, spinal marrow, nerves, and great sympathetic system.

The Locomotive organs.—The bones, muscles, tendons, and ligaments.

The Vocal organs.—The larynx and its appendages.

The masculine Genital organs.—The penis, testes, &c.

The feminine Genital organs.—The vagina, uterus, uterine tubes, and ovaries.

The Digestive organs.—The mouth, salivary glands, œsophagus (gullet), stomach, intestines, liver, pancreas, &c.

The Chyloferous organs.—The absorbent vessels spread over the internal surface of the stomach and intestinal tube.

The Circulatory organs.—The heart, arteries, veins, capillary vessels, and blood.

The Respiratory organs.—The parietes of the chest (the ribs, muscles, mouth, nostrils, &c.), the trachea, diaphragm, bronchi, and lungs.

The Exhalent organs.—The perspiring vessels.

The Secretory organs.—The glands, liver, kidneys, testes, uterus, salivary and lachrymal glands, pancreas, &c. &c.

The Absorbent organs.—The lymphatic vessels and veins.

The functions are Animal and Organic.—1. Animal; those influenced by the brain, which place man in relation to the different objects of nature. 2. Organic; those influenced by the sympathetic or ganglionic system, which affect the functions of internal organs independently of the will: the first influence life—the second, internal life, or nutrition.

I. ANIMAL FUNCTIONS.—Those which place man in relation to all bodies which surround him.

1. *The Senses, or external sensations.*—Vision, palpation, audition, gustation, and olfaction. 2. *Internal sensations*, by which he perceives and meditates on the impression transmitted to the brain by the senses. 3. *Locomotion*, or power of moving from one place to another, which enables him to seek and enjoy the different objects or sensations which are agreeable or disagreeable. 4. *The Voice and Speech*, by which sensations and thoughts are communicated. 5. *Generation*, or the perpetuation of the species.

2. ORGANIC FUNCTIONS.—Those of internal life are, 1. Digestion, by which the various aliments or foods are changed into chyle; the source of new blood, nutriment, and strength; 2. Chyliferous absorption, by which the chyle is conveyed to the heart; 3. Circulation of the blood, by which the chyle is conveyed to the lungs, and there transformed into blood, whence it is returned to the other or left cavities of the heart, and sent through the arteries to every organ or part of the body, for the nourishment of each; and the superfluous quantity is returned to the right cavities of the heart, to be mixed with the chyle, conveyed to the lungs, there vitalised, or arterialised, and again circulated throughout the body; 4. Respiration, by which the chyle is converted into scarlet blood by the action of the atmosphere upon it, and by a vital process; 5. Exhalation, or the deposition of certain principles of the blood on the external surface, and internal structure of organs; 6. Nutrition, or the conversion of blood into the substance of organs; 7. General absorption, or the function of the lymphatic vessels, by which these take up, from the surface or internal parts of organs, certain fluids, or substances, which they convey into the circulation of the blood; and 8. Calorification; or the formation of caloric, or heat, for the proper performance of the functions and sustenance of life.

Of the Animal System in a state of Health.

1. The nervous or cerebro-spinal system; intellectual or mental faculties; the passions; phrenology; animal magnetism; sleep; dreams; somnambulism; catalepsy; asphyxia.

2. The sanguineous or circulating system; is the blood the source of life? history of the pulse.

3. The respiratory system.
4. The digestive system.
5. The lymphatic or absorbent system.
6. The secretory or glandular system.
7. The muscular system.
8. The osseous or bony system.
9. The ligamentary system.
10. The system of the senses.
11. The generative or reproductive system.

The study of the Functions of the Living Economy, or Organism, should naturally precede the study of the derangements and changes to which it is liable. The functions of the human body are eleven in number:—1, Innervation; 2, Circulation; 3, Respiration; 4, Digestion; 5, Absorption; 6, Nutrition; 7, Secretion; 8, Sensation; 9, Intellectual Combination; 10, Action of Expression; and 11, Generation. These functions are divided into four classes: 1, *Vital*; innervation, circulation, respiration; 2, *Nutritive*; digestion, absorption, nutrition, secretion; 3, of *Relation*; sensations, intellectual combinations, actions of expression; 4, *Genital*; generation.

The functions of relation require especial notice, as they are often neglected. They are divided into three principal orders:—1, of *impressions*; 2, of *intellectual combination*; and 3, of *expression*.

1. *Functions of Impression*.—Modifications determined in the nervous system, whence result *sensations*, and these are divided into *general* and *special*.

General Sensations are effected indistinctly by all agents of excitation, and received by all organs on account of their nervous connexion with the brain.

The external impressions directly affect the brain, and cause *elements of ideas*; and the *internal impressions* are indirectly conveyed to the encephalic nervous system by the ganglionic nervous system, and cause the *elements of the passions*, a distinction that reflects the greatest light on the philosophic history of the moral state.

Special Sensations.—These depend on certain organs, and are divided into five varieties:—1, *Palpation* intermediary between general and special sensations; 2, *Gustation*; 3, *Olfaction*; 4, *Audition*; and 5, *Vision*.

2. *Functions of the Intellectual Combinations*.—These comprise the *intellectual faculties*, and the *passions*. Under this head are also considered the reciprocal influences of *instinct* and *reason*, with the *physical* and *moral constitution* of man.

The *physical constitution* embraces *temperaments*, or the predominance of a certain order of apparatus, and these are divided into *nervous*, (encephalic and ganglionic,) *lymphatic*, *sanguine*, *muscular*, *bilious*, and *melancholic*.

The *moral constitution* refers to character, and depends upon the

predominance of a certain order of intellectual faculties or passions, and of this we have the following varieties :—1, *curious* ; 2, *indifferent* ; 3, *voluntary* ; 4, *indecisive* ; 5, *reasonable* ; 6, *maniacal* ; 7, *philanthropic* ; 8, *egotistic*.

Functions of Expression.—It is by the actions of expression that the *exterior* man can perceive the *interior* ; or that we distinguish the *moral* from the *physical* state. The doctrines of Lavater and Gall were intended to reduce this study to great simplicity.

Generation.—This function presents six phenomena :—1, *preparatory excitation* ; 2, *copulation* ; 3, *fecundation* ; 4, *gestation* ; 5, *parturition* ; and 6, *lactation*.

The last part of physiology comprises four divisions :—1, the *History of Life* ; 2, *Considerations on Death* ; 3, *Chemical Decomposition of the Organism* ; 4, *Natural Theory of the Human Race*.

The *History of Life* is divided into six epochs :—1, *fœtal life* ; 2, *infancy* ; 3, *adulthood* ; 4, *boyhood, girlhood* ; 5, *puberty, menstruation* ; 6, *virility, manhood* ; 7, *old age* ; 8, *caducity* ; 9, *longevity*.

General Considerations on death.—Natural death, its causes, accidental or sudden, effects on the heart, lungs, and brain ; signs of death, illusory, probable, certain ; application to legal medicine. Lastly, we are to include the natural theory of the human race.

Such is the immense scope of physiology ; but in the institutions or principles of medicine we have still a much larger field to cultivate. Let us now proceed to consider them.

For some centuries past, the Principles or Institutions, and the Practice of Medicine have comprised the study of the following sciences :—

1. Anatomy, which teaches a knowledge of the infinity of parts that compose the human body, in its normal or natural condition. This science is the fundamental basis of medicine. It would be impossible to form an accurate idea of an organ in disease, unless we knew its healthy appearance. Deprived of this salutary light, the medical practitioner could not treat diseases with the least success. By it, he learns the most admirable and wise co-ordination, the concatenation, and respective relations of the numerous organs to which is confided the mysterious exercise of life. Among these he finds nothing defective, nothing superfluous ; since the most imperceptible as well as the largest organ fulfils, in the mechanism of life, a function important and essential to the maintenance of the whole. Nothing is more capable of elevating the mind towards the Sublime Architect of the Universe than the consummate perfection we discover and admire in his principal work—the construction of man.

2. Physiology is the science of the functions or actions, or uses performed by the organs in the living body, such as the circulation of the blood, sensation, digestion, respiration, vision, audition, gust-

tation, olfaction, &c. What can be more interesting to our study and reflection than these functions, and more especially the intimate connexion between the intelligent principle and substance purely material, or, in other words, between mind and matter?

3. Pathology is the science of the nature of diseases or disorders of functions. It is divided into Nosology, Etiology, Symptomatology, and Semeiology or Semeotics.

4. Therapeutics is the science of preventing or treating disorders and diseases. This comprises Hygiene, Materia Medica and Botany, Pharmacy, Chemistry, Surgery, and Obstetricky.

The study of State Medicine with Medical Jurisprudence is also required.

The study of each of these branches is imperiously necessary to the medical practitioner; and no man, however ingenious or talented, can practise medicine, including all its branches, with satisfaction to himself or safety to the public, without a competent knowledge of the elements of all the above sciences.

Medicine is now defined the art of preventing and treating diseases; but formerly it was called the art of preserving health and curing diseases. The word cure is not used at present, because we possess no remedy capable of effecting an immediate cure. There is a great difference between treatment and cure, as many diseases are incurable, but still are proper subjects of treatment.

The institutions or principles of medicine are divided into three branches:—

'The first treats of life and health.

'The second embraces the general doctrine of diseases.

'The third comprises the general doctrine relative to the means of preventing and treating diseases.

These three divisions are included in Physiology, Pathology, and Therapeutics.

PHYSIOLOGY, OR THE STUDY OF THE FUNCTIONS AND ACTIONS WHICH CHARACTERISE LIFE.

The study of the functions of the mind and body in health is termed Physiology, or the doctrine of the Animal Economy; and this is the only sure foundation on which scientific practice can be raised.

The Functions of the Animal Economy, or uses or actions of the different organs of the body, are so various and complicated, that they form a kind of circle, at any point of which we may commence our investigations. All these are manifestations of life, and all are indispensable to the health of man. It is extremely difficult to determine the proper order in which they are described: some illustrious physiologists commencing with the nervous power or energy, now termed Innervation; others with the circulation of the blood; more with digestion, respiration, &c. The definition of

diseases proves at once the importance of Physiology : all consist in the disorders or derangements, or alterations in organs, and consequently of the functions which they are destined to perform. We cannot restore diseased parts to their normal condition, if we are ignorant of that state.

The vital Properties or Functions of the Animal Economy are divided into six : *Sensibility, Contractility, Caloricity, Expansibility, Sympathy, and Synergy.*

1. *Sensibility* is that power which living parts possess of receiving impressions from the different bodies with which they are placed in contact. There are two modifications of it, the *organic* or *latent*, and the *moral*.

The one is not subservient to volition, and is common to all living beings ; the other is the attribute of thinking beings. The first is illustrated by the functions of the organs which are performed independently of the mind, as circulation of the blood, glandular secretion, &c. The second is that of which the intellect is cognizant ; as vision, olfaction, gustation, audition, palpation, or touch. It is that which enables us to perceive the sensations of hunger and thirst, pleasure and pain ; in fact, all the sensations of which the soul is capable.

2. *Contractility* is that function which enables living beings to perform their motions. It is also divided into *organic* and *moral*. The first is exemplified in the interior motions of organs which are performed without our knowledge, as the secretion of the glands, the action of the lymphatics, &c. The second is that of which the soul acquires a knowledge. It is subdivided into *voluntary* and *involuntary* ; the first consists in those movements under the influence of volition, as walking, dancing, &c., the second are performed with our cognizance, but without our ability to accelerate or suppress them : as the action of the heart, kidneys, &c.

3. *Caloricity* is that faculty which organs possess of preparing a quantity of heat necessary to life ; and of maintaining the temperature of the body in all situations, whether hot or cold. This is as indispensable to life as air is to respiration ; it penetrates, warms, dilates, expands the organs, facilitates the circulation of the fluids, and, in a word, it animates all parts, and without it life ceases. When it is in excess, it irritates, inflames, and disorganizes all living tissues. The temperature of the human body is 98° of Fahrenheit, and this does not vary in the coldest or warmest climate. The quantity of caloric necessary to existence is modified by habitation, aliment, drink, clothing, &c.

4. *Expansibility* is the faculty which enables organs to expand or dilate themselves for the admission of certain substances necessary for their growth, their preservation, and the exercise of their functions. Deglutition, respiration, dilatation of the heart, &c. illustrate this faculty.

5. *Sympathy* is that faculty by which organs almost simultane-

ously perceive the impressions of others, either contiguous or remote. This arises from the universal nervous connexion which subsists in all parts of the body, through the cerebro-spinal system. It would be easy to illustrate this faculty by thousands of examples; a few shall suffice. Thus the sight of agreeable food will excite the salivary glands, as will also its odour; the sight or odour of a disagreeable object will cause headache, nausea, vomiting, or fainting; disease of one eye will affect the other, a diseased tooth will cause pain in different parts of the face, ear, eye, head; it will prevent sleep, derange the appetite, and in an infant will induce diarrhœa; disorders of the stomach will derange the liver, lungs, heart, brain, kidneys, uterus; in short, every part of the body. A knowledge of the cause of sympathy enables us to account for most of the symptoms of disease.

6. *Synergy* is the action of every organ directed to one end. Thus we observe a series of functions employed in the digestive process; as mastication, deglutition, chymification, chylication, and absorption. Such are the vital properties; but Life itself cannot be located or described.

Functions in General.

Function is defined the action or use of an organ or a series of organs, as that of the lungs in respiration, that of the liver in secreting of bile, that of the kidney in secreting urine, &c. Functions are subdivided into *organic* and *intellectual*, each having a reciprocal action upon the other. This arises from the intimate connexion between the material and immaterial endowments of our being. Every one knows the influence of the mind and the passions over the corporeal organs in health and disease.

The *Intellectual Functions* are comprehended in the term *Psychology*, and their operations are ten—sensation, attention, perception, memory, imagination, analysis, association of ideas, comparison, judgment, and reason. The concurrent action of these with those of the organic functions causes our wants, affections, and intelligence. The natural cares of man are, the conservation of his health and the propagation of his species; the natural affections, self-love, love of the Supreme Being, and of all that contributes to his own happiness; and, on the contrary, a hatred of all things that diminish this happiness. The natural intelligence arising from the light of reason endows him with power to distinguish good, evil, the existence of a Sovereign Being, and the immortality of the soul.

The passions may be either morbid or therapeutic agents.

Functions purely organic.—The organic functions are, the external sensitive, the internal sensitive, the locomotive, the vocal, the masculine and feminine reproductive, the digestive, the chyloferous absorbent, the circulatory, the respiratory, the exhalent, the secretory, and the general absorbent.

The eye, ear, nose, palate, and skin, with their appendages, form the *external sensitive* apparatus. The brain, spinal marrow, and their numerous nerves, with the great sympathetic, constitute the *internal sensitive* apparatus. The bones, muscles, tendons, and ligaments, compose the *locomotive* apparatus. The larynx and its appendages form the *vocal* apparatus. The testes, penis, &c., constitute the *masculine genital* apparatus. The vagina, uterus, ovaries, &c., compose the *feminine genital* apparatus. The mouth, salivary glands, stomach, intestines, liver, pancreas, &c. form the *digestive* apparatus. The numerous absorbent vessels placed on the surface of the stomach and intestines constitute the *chyliferous* apparatus. The heart, arteries, veins, and capillary vessels compose the *circulatory* apparatus. The parietes of the chest, the trachea, diaphragm, bronchi, and lungs, constitute the *respiratory* apparatus. The perspiring vessels compose the *exhalent* apparatus, the glands the *secretory*, and the lymphatics the *absorbent* apparatus.

The order in which these functions are considered is indicated by nature. It has been already stated that there are two sensitive centres which preside over the functions of the economy, the cerebral system, and that of the great sympathetic nerve. The first influences all the organs destined to place man in relation with the different objects of nature; the second governs the functions of the internal organs independent of the will: the first affects life, the second internal life or nutrition.

The functions which place man in relation with all beings to which he is exposed, are: 1, *external* sensations which make him perceive the qualities and properties of all bodies with which he comes in contact; 2, *internal* sensations, in virtue of which he *perceives* and meditates on the impressions transmitted to the brain by the senses; 3, *locomotion*, which enables him to seek and enjoy the different sensations, agreeable or disagreeable; 4, the *voice* and *speech*, by which sensations and thoughts are communicated; 5, *generation*, or the function by which the sexes, after the age of puberty, enjoy the faculty of procreating and perpetuating the species.

The *internal* functions, or those of nutrition, are:—1, *digestion*, by which the various aliments are changed into chyle, or the source of nutriment or strength; 2, *chyliferous absorption*, by which the chyle or nutritive portion of the aliment is conveyed to the heart; 3, *circulation of the blood*, by which the chyle is conveyed to the lungs, and there transformed into blood, whence it returns to the heart, and is sent through the arteries to every part of the body, and returned by the veins to the heart, to be again vivified and augmented by the addition of chyle and the function of respiration, and is again circulated through the body; 4, *respiration*, by which the chyle is converted into blood by the action of the atmospheric air upon it and the blood; 5, *exhalation*, or the deposition of certain principles of the blood on the surface and interior of organs; 6, *nutrition*, or the transformation of blood into the substance of

organs; 7, *general absorption*, or the function of the lymphatics, by which they take up from the surface and tissue of all the organs certain fluids, which they convey into the circulation; 8, *calorification*, or the formation of the heat necessary for the proper performance of functions and the sustenance of life.

It is impossible to describe each of these functions in a work of this kind; an accurate account of all of them will be found in the systems of physiology; and for the same reason other points must be omitted, as the different ages of man, the temperaments, constitutions, habits, idiosyncrasies, or peculiarities of constitutions, death, putrefaction of the human species, and the natural theory of the varieties of mankind.

Of the Animal System in a state of Disease.

This department is termed *Pathology*, or the doctrine of the nature of diseases, and is described in the same order as Physiology.

PATHOLOGY, OR THE DOCTRINE OF DISEASES.

Health, the free, regular, and natural performance of all the functions. Disease, a deviation from health, consisting in the derangement of one or several functions, or of the structure, position, or vitality of one or several organs. Disease is applied by some to lesion or change of structure; disorder to change of function. Every case is disorder, disease, or a complication of both.

Diseases and disorders are considered in relation to their causes, invasion, progress, terminations, symptoms, signs, classification, and treatment. They may terminate in health, death, or other complaints.

The word *Pathology* means a discourse or a history of diseases. According as one or several organs or functions are deranged, *Pathology* is divided into *special* or *general*.

General Pathology.—The life of man is divided by most writers into four different states—health, immence, disease, and convalescence. *Health* is defined the free, easy, and regular performance of all the functions. *Disease* consists in a derangement in the position, structure, or vitality of one or many organs, and consequently in the function or functions of organs. *Immence* is applied to slight indisposition, which may terminate immediately in health or disease. *Convalescence* is that period which extends from the time of recovery to the complete establishment of health.

We consider diseases in general under the relation of their *causes*, their *invasion*, their *progrss*, their *terminations*, their *symptoms*, their *signs*, their *classification*, and their *treatment*.

ETIOLOGY, OR CAUSES OF DISEASES.

The causes of diseases are all those circumstances capable of deranging the health. These are divided into *internal* and *external*, according as they exist in the body itself, or originate from the innumerable agents that surround it.

The causes of disease are subdivided into the *remote* and *proximate*; and into the *occasional* or *exciting*; and the *predisposing*.

Causes are called *remote* when there is an interval between the time of their application and that at which the disease is produced: thus exposure to cold may produce pneumonia or fever at a longer or shorter interval, and cold is called the remote cause of the disease.

The *occasional* or *exciting* cause is applied to that which induces a morbid state. The ingestion of improper aliment will excite nausea or vomiting; but the cause, though exciting, is remote, when compared to the proximate, or that which induces the action of the stomach during vomiting.

The *proximate* cause is intended to mean the exact condition of an organ when its function or structure is diseased; or in other words, it is the disease itself. Many eminent writers among the moderns object to the term proximate cause, but many others adopt it.

The *predisposing* cause is a certain condition of the body which renders it liable to be affected by remote or occasional causes. For example, an individual may at one time be exposed to the influence of cold without any injurious effect, but at another time it will induce fever or inflammation. Now the cause being the same on both occasions, there must be something peculiar in the body, that exposed it to be affected at one time and not at another. This state is called predisposition, without whose existence in many cases the causes of diseases do not operate. But violent causes may act without this predisposition. The application of intense heat will cause a burn without predisposition; but the effects of the injury will be considerably modified by the state of health of the sufferer. A man whose health is injured, is much more predisposed to diseases of various kinds than one whose health is good.

Invasion of Diseases.—This term is applied to the absolute appearance of disease consequent to the action of one or many causes. The attack may be slow or sudden, or may be preceded by certain symptoms, as derangement of the physical or intellectual powers previous to the commencement of fever. Some have applied the term *incubation* to the time that elapses from the slightest derangement to that of the development of the disease.

Progress of Diseases.—We consider diseases in relation to their duration, periods, and types. As to their duration, they are divided into *acute* and *chronic*, the one class proceeds rapidly, the other slowly.

The *periods* of disease are applied to their stages, and are six ; 1, the prelude ; 2, the invasion ; 3, the augmentation ; 4, the middle ; 5, the disease ; and 6, the termination.

Type or Form of Disease is used to express the order in which the symptoms appear and succeed. Under this head diseases are divided into *continued*, *intermittent*, and *remittent*. The *continued* diseases are those which run their course without any interruption in their symptoms ; the *intermittent* are called periodical, or those whose course is interrupted by intervals of health ; and the *remittent* are those which have an alternate diminution and an augmentation in their symptoms.

SYMPTOMATOLOGY, OR SYMPTOMS OF DISEASES.

The term *symptom* is applied to every alteration of organs, functions, and fluids which is appreciable by the senses, and which attests the existence of some disorder or disease. Symptoms are divided into *local* and *general*, *proper* and *common*, *primitive* and *consecutive*. The local symptoms are those which exist in a diseased part, as pain, heat, redness ; the general are those which extend from the diseased part to the principal organs of functions of the economy. Thus the disease called whitlow will not only cause intense pain in the finger, but in the arm, and will finally produce loss of sleep, want of appetite, and considerable constitutional disturbance.

The *proper* symptoms are those peculiar to certain diseases, as dilatation of the pupil in compression of the brain ; while the *common* symptoms are present in a variety of diseases, as dejection of mind, loss of appetite, &c.

The *primary* or *primitive* symptoms are those that occur in a short time after the application of the morbid causes, as the appearance of small-pox soon after inoculation, or the appearance of a chancre or gonorrhœa soon after exposure to the causes ; while the *consecutive* symptoms, as the fever and maturation of small-pox, or bubo, eruption, or stricture in the other cases, do not occur for a long time after the commencement of the disease.

SEMEIOTICS, OR SIGNS OF DISEASES.

Medical Phenomenology.—Every phenomenon, that is to say, every action, alteration, abnormal derangement of function, and every change of fluid, is a *sign* of disease. Signs are relative to the past, present, or the future. These are called *commemorative* when they refer to the history of the disease, and *diagnostic* when they refer to the actual state of the malady ; and are divided into *certain*, *equivocal*, and *uncertain*.

In detecting diseases, we must carefully examine all the regions of the body, and every organ and function in particular. This ex-

amination is accomplished by the aid of the senses of vision, hearing, touch, taste, smell, and by the use of certain instruments. Our primary object is to discover whether the disease be merely a disorder of function, or a lesion of structure; whether it be purely nervous, or dependent on increased vascular action, arising from congestion, inflammation, or the consequences of this last. It is of the utmost importance to determine the nature of the disease; for if functional, the treatment will be totally different from that requisite for structural, and *vice versa*. In many instances we cannot form a correct diagnosis; in many it is impossible; and in several cases we have to treat combinations of both species of disease at the same time, a complication which forms decidedly the most difficult part of the practice of medicine. A minute account of taking symptoms and investigating diseases will be found in a future page, under the head of Clinical Medicine, and in the special histories of diseases.

1. *Signs or Morbid Indications afforded by the Senses.*—A brilliant sparkling eye indicates disease in the brain either idiopathic or symptomatic. When the eye is dull, disturbed, haggard, or expresses fury or fright, it is an unfavourable sign, and often announces the approach of death.

Deafness in acute diseases indicates serious disease in the brain or ear.

Loss of smell and taste are presumptive signs of more or less irritation in the stomach or brain.

Loss of touch announces disease of the brain, or cerebro-spinal system, and of the prostration of the vital powers. See signs afforded by the Cerebro-spinal system.

2. *Signs or Morbid Indications afforded by the Moral Condition.*—The full and entire use of reason, serenity of mind, courage, hope, and gaiety, are favourable in disease. But patients may present all these signs to the last hour, and nevertheless die suddenly.

The exaltation of the intellectual faculties, or the sudden augmentation of the memory, judgment, powers of reasoning and imagination, in severe diseases, is almost always a certain indication of a last effort of nature against death, to which fatal sinking very speedily succeeds.

Derangement of reason or delirium, restlessness, sinking, sadness, and despair, denote serious diseases.

Pain never exists without a cause; and it indicates some morbid condition in the part in which it is situated. The character of the pain will furnish an exact diagnosis of the nature of the disease, and consequently of the means to be employed for its removal. We distinguish seven kinds of pain, 1, *tensive*; 2, *pulsative*; 3, *lancinating*; 4, *pungent*; 5, *burning*; 6, *piercing*; 7, *dull, heavy, or gravative*.

1. *Tensive pain* is accompanied by a sensation of distension, such as that of an abscess.

2. *Pulsative* is accompanied by a sensation of throbbing more or less violent, as in the formation of an abscess in different organs.

3. *Lancinating* affords a sensation as if a sharp instrument were suddenly driven into a living part, as in rheumatism.

4. *Pungent* resembles that of a puncture, as in pleurisy.

5. *Piercing or boring*, is compared to the effect of an augre passed into a living part, as in the pain of the head called *clavis hystericus*.

6. *Dull, heavy, or gravative* pain is attended with a sense of weight, as in dropsies.

Signs or Morbid Indications afforded by the Movements.—The immobility, inertness, and stupor of the sick, convulsions, contractions, and relaxations of the muscles, spasms, and contractions of organs, startings, and projections of the tendons, especially of the wrist, are signs of violent inflammation in the brain or stomach.

Carphology, or the movement which the sick make in searching for, or grasping at imaginary objects, is regarded as a sign immediately preceding death. Convulsive agitations of the different muscles of the face, the sinking of the features, the *facies tetanica*, or spasms of the muscles which support the eyelids, the *alæ nasi*, superior lip, and lower jaw, sharpened features, or the *facies Hippocratica*, indicate a great alteration of the brain or digestive organs.

Signs or Morbid Indications afforded by Sleep.—An agreeable sound sleep is a favourable sign; but when it is disturbed by sudden startings and frightful dreams, it indicates some serious internal disease. Insomnia, or want of sleep, denotes irritation of the cerebral system. Somnolence indicates congestion, inflammation, or effusion into the brain.

Signs or Morbid Indications afforded by the Cutaneous Surface.—Of all parts of the body, the external surface affords us the best indications of disorder or disease. There is scarcely a fatal disorder or disease which we cannot detect by the appearance of the physiognomy, and by the external habitude of the body.

The Face.—We discover cerebral congestion by redness or lividity of the face, lips, or cheeks; hectic by the red patch over the malar bone or the cheek; jaundice and disease of the liver by the yellowness of the eye or face; anæmia by pallidity of the face, lips, and tongue; chronic, liver, or abdominal disease, by the greenish yellow tinge and reticulated appearance of the blood-vessels of the face; phthisis, or consumption, by the paleness of the face, with a slight blush, and transparency of the eye; convulsions by contortions of the countenance; typhus by a peculiar depression of the physiognomy; enteritis and colic by a characteristic expression of the countenance; approach of death by a sharpening of the features, designated the *facies Hippocratica*. The commonest observer remarks whether a person is well or ill by the appearance of the countenance. It is indicative of the state of feelings. It is con-

torted in convulsions ; expressive of anguish in painful diseases, as colic, enteritis, irritation, inflammation, pain, or spasm in any part ; from it we learn the strength or debility of the sick in many forms of disease. The yellowish, leaden coloured countenance denotes cancer ; scurvy is characterised by the pallidity or lividity of the cheeks, congestion of, or hæmorrhage from the gums ; the face is red, animated, and tumefied in fevers, continued, intermittent and eruptive ; in epistaxis, in one form of delirium, in the access of mania, hydrophobia, and accompanies cerebral congestion and hæmorrhages. There is a red patch on one cheek in hectic. In pneumonia, pleuritis, hepatitis, &c. the side of the face which corresponds to the affected organ is often red. In aneurism of the right side of the heart the face is injected, the lips are livid, the jugular veins congested, while the colour is more vivid in hypertrophy of the left side of the heart. The countenance is contracted in inflammations of the abdominal viscera, cholera, colic, ileus, and all painful diseases.

All parts of the countenance afford diagnostic indications. Of all parts of the face, the eyes best express disease. The numerous communications which exist between the fifth pair of nerves and the great sympathetic, transmit to the brain all visceral perceptions, and also convey to the eyes all morbid changes in the internal organs. We should therefore observe the colour, motions, secretions, and states of the pupils, of the visual organs.

The Eyes.—The colour of the sclerotic tunic is blue in the lymphatic and serofulous, of pearly whiteness in the consumptive, yellow in the jaundiced, reddish in fevers, acute cerebral inflammations, and congestions, and principally in the eruptive fevers, measles, small-pox, scarlatina, &c. The eyes are often immovable in apoplexy, amaurosis, and cataract ; their motions are rapid and convulsive in strabismus, hysteria, epilepsy, and other convulsive affections. The eyes are red and sparkle in affections of the brain, and are turned upwards during sleep in ventricular arachnitis, in the last stages of various diseases, and at the approach of death. The pupil is dilated in apoplexy or intense cerebral congestion, in narcotism from opium, &c., in effusion into the ventricles (hydrocephalus), in compression of the brain, though sometimes the pupillary aperture is contracted in these cases.

The eyes roll and the pupils are contracted in various degrees in convulsions ; and there is strabismus in hydrocephalus. In mania and delirium tremens the eyes glisten, the aspect is wild, and in the latter the vision is depraved.

The *Eyelids* and *Eyelashes* offer means of diagnosis. The eyelids are open in all the agreeable passions, as joy, astonishment, &c. : they approach in pain and melancholy, and contract in painful and convulsive diseases, as in iritis, retinitis, and deep-seated ophthalmia. The eyelids are agitated in hydrocephaloid affection, hysteria, epilepsy, delirium tremens, mania ; and are depressed in para-

lysis of their muscles in apoplexy. The eyelashes are elongated in the scrofulous and consumptive. There is lachrymation in conjunctivitis, in obstruction of the lachrymal ducts, in coryza, catarrh, influenza, eruptive fevers, hysteria, hypochondriasis, and dyspepsia.

The *Ears* are more or less red in acute congestions or inflammations of the brain or scalp, and become livid in diseases of the heart, and in all diseases that impede respiration and circulation. The secretion of wax may be increased or diminished according as otitis is acute or chronic; and a copious fetid, purulent discharge is produced by ulceration or caries of the temporal or aural bones. It also occurs in typhus and scarlatina. Deafness depends on disease in the brain or ear, and often occurs in fevers, phthisis, and various other diseases on the approach of death.

The *Nose* is enlarged in coryza, in scrofula, and scurvy; it is diminished in chronic diseases, and especially in consumption. It is red in coryza, acne, and catarrh; it is pale or livid in typhus, ague, and when exposed to severe cold. The rapid or convulsive motions of the alæ nasi indicate laborious respiration, as in asthma, or the last stage of consumption, pneumonia, typhus, or eruptive fevers.

The *Lips*, which commence the gastro-pulmonic mucous system, are red and dry in most of the gastric and pulmonic inflammations, pale in dropsies, and after severe uterine or other hæmorrhage; they are bluish in the cold state of fevers, in asthma, pneumonia, aneurism of the heart and large vessels, and whenever the circulation is languid or impeded, as in malignant cholera; they are livid or black in apoplexy, cerebral congestion, or asphyxia from strangulation, suffocation, suspension, or submersion. They are covered with a brown or black sordes in typhus and infantile remittent fever. They are covered with eruptions from cold or cutaneous diseases. They are ulcerated in aphthæ, stomatitis, syphilis, scurvy, &c. The lips tremble on the approach of convulsions, severe vomiting, or diarrhœa. The deviation of the commissure of the lips is a sign of compression on the brain or of paralysis.

The *Gums* are pale in anemia, chlorosis, ascites, and scrofula; red in gastro-enteritic irritation or inflammation, and during dentition; they are tumid, bloody, and exhale a fetid odour in scurvy, purpura maligna, and the last stage of fevers.

The *Teeth* are peculiarly white in consumptive persons; they become yellow in dyspepsia, hepatitis, nephritis; are covered with tartar in gastric diseases; with a brown or black sordes in the last stage of typhus, eruptive, gastro-enteritic fevers, and in infantile remittent, and they become carious during pregnancy.

The diagnosis afforded by the tongue is highly important. The *Tongue* is connected with the stomach by the pneumogastric, or eighth pair of nerves. Hence its sympathy with the latter organ, and the cause of its being indicative of diseases of the digestive organs. Tumefaction of the tongue occurs in small-pox, aphthæ,

stomatitis, hydrargyria or mercurial disease, and in fevers. The tongue is red in inflammations of the fauces, as scarlatina maligna, of the stomach, intestinal tube, in the eruptive and other fevers; it is pale, soft, and moist in anemia, dropsies, serofula, and asthenic diseases; it is dry, contracted, and retracted in the last stages of acute gastro-intestinal inflammation, diarrhœa, dysentery, adynamic, or ataxic, or typhus fevers. It is white and covered with mucus in gastro-intestinal irritation, in delirium tremens, in paralysis, and most chronic diseases. This colour distinguishes irritation in the mucous follicles, and may successively become greyish, yellowish, brown, or black, according to the intensity of the affection. In idiopathic typhus, or when the disease is symptomatic of inflammation of any organ or tissue in the body, the tongue, which was at first red and dry, becomes brown or black; the teeth, gums, and lips being covered with a brown or black sordes. Typhoid symptoms supervene on fractures, wounds, exanthematous eruptions, and inflammations of the organs in the head, chest, abdomen, and pelvis. Hence we employ the term symptomatic typhus.

After the examination of the different parts of the countenance, we should inspect the rest of the cutaneous surface.

The Neck, Chest, Abdomen, and Extremities. Of this *the hand* is examined next to the countenance, both as to temperature and the state of the pulse. In hectic, the palm of the hand is hot and dry; the nails are livid in cerebral and pulmonic congestions, yellow in jaundice, and curved or arched in phthisis and serofula.

The *touch, palpation*, or application of the hand enables us to discover the augmentation, diminution, changes of the various tissues, modifications of temperature, presence of tumours, the presence of cellular infiltration, as in anasarca; fluctuation, as in ascites, hydrothorax, hydrocele, ovarian dropsy, pregnancy, and diseases of the uterus; gastritis, hepatitis, peritonitis, enteritis, hysteritis, nephritis, splenitis, and all the diseases of the chest by percussion, succussion, mensuration, and mediate auscultation. We discover calculus in the bladder by catheterism; and œsophagean, rectal, urethral, lachrymal, and aural strictures or obstructions, by manual operations. The morbid conditions of temperature are ascertained by the touch. Local defect of heat depends upon cerebral or gastric irritation; the limbs are cold with dyspeptics, and also at the approach of death. General deficiency, indicated by rigors or shivering, may depend upon great prostration of the vital powers, as after violent injuries of the head, or a severe hæmorrhage; incipient fevers; thoracic, abdominal, or pelvic inflammations, or suppuration of internal organs. Excess of local heat indicates irritation or inflammation; and general heat, reaction, constitutional irritation, fevers, or inflammation of deep-seated organs. Dryness of the cutaneous surface is observed in dropsies, diabetes, and the hot stage of the different fevers; while moisture

of this part may be induced by relaxation or debility. Redness is a sign of inflammation; when circumscribed on the cheek, it is a sign of hectic fever, or of mesenteric disease in children, or of infantile remittent fever. Paleness of the skin, especially of the face, which is succeeded by blushing, indicates mesenteric disease in children, and phthisis in adults.

Yellowness of the face and skin is a sign of deranged secretion of bile.

Coffee, or copper-coloured eruptions, are produced by syphilis; and black spots indicate purpura, scurvy, or determination of the blood in the last stage of continued and eruptive fever; and indelible blackness of the whole surface of the body may be caused by the free internal use of nitrate of silver or lunar caustic.

The sense of *hearing* is highly valuable as a diagnostic in diseases of the chest, heart, in pregnancy, and in deep-seated fractures.*

The sense of *smell* enables us to discover the various odours of the excretions, and these may vary according to aliments or drinks, or medicines, whose presence will be detected in the expired air or breath, the urine and perspiration. The cranial, axillary, inguinal, and pedal transpirations differ; the excretions exhale an acid odour in infancy, and sometimes in eruptive fevers; the breath is fetid in ozena, carious teeth, scurvy, mercurial salivation, and in the last stage of consumption, typhus, and cerebral diseases. Many of the cutaneous eruptions have particular odours, small-pox, porrigo, &c. The puerperal and catamenial discharges possess peculiar odours. The cadaverous odour of the breath is a fatal sign in many diseases, and the chief symptom of gangrene of the lungs.

The last sense is *taste*, which is seldom employed in the exploration of morbid productions, with the exception of the urine in diabetes, and other abnormal fluids. In the early ages, the bronchial, gastric, intestinal, renal, and uterine excretions were tasted; but there are few pathologists of our times so zealous as to avail themselves of this mode of exploring the nature of diseases.

The morbid conditions of *attitude* are diagnostic of disease. When a patient repose on the back in the last stage of fever, or acute diseases, it is a proof that the powers of life are depressed, as more muscular exertion is required to lie on the sides than on the back. This position, attended with the descent of the sick in bed, is generally a fatal sign in acute diseases. This position, when conjoined with flexion of the lower limbs, so as to relax the abdominal muscles, is a sign of abdominal inflammation, as in enteritis, peritonitis, &c. Decubitus on the abdominal surface of the trunk is a sign of colic, disease of the kidney, or spine. In pleurisy and pleurodynia, the patient lies on the sound side; in pneumonia and effusion into the cavity of the pleura, or on the lung, the sufferer lies on the affected side. In chronic hepatitis the sick person re-

* See signs afforded by respiration in a subsequent section.

poses on the right side, because if he placed himself upon the other, the weight of the liver on its ligaments would induce pain and uneasiness. When children are about to be attacked with convulsions, the thumbs are turned across the fingers, and the hands are clenched. In diseases of the kidney, the lower limb is sometimes retracted, or painful.

Signs or Indications afforded by the Nervous or Cerebro-Spinal System.—It is to be recollected that the functions of the brain are the intellectual faculties, sensation and locomotion, which when deranged are highly dangerous. The signs of disease in this system are, large size of the head, great growth of hair, pulsation of the temporal, vertebral, and carotid arteries, heat of scalp, pain in the head, intolerance of light or sound, sense of tightness in the forehead, sense of weight in the occiput, tinnitus aurium or singing in the ears, acute or dull hearing, vertigo, somnolence, drowsiness or coma, defective articulations, rolling the head on the pillow, and excessive restlessness. The countenance is red, livid, or purple, when the respiration is impeded, the circulation hurried, and the digestive organs are deranged. The intellectual faculties and the powers of motion and sensibility are disordered. When sense and motion are disturbed on one side, the disease of the brain is generally, though not invariably, on the opposite one. In paralysis, with relaxation of the muscles, there is effusion or change of structure in the substance of the brain. Paralysis, with rigid muscles, or with convulsion, depends upon irritation or inflammation of the brain, arising from the presence of a foreign substance, as a clot of blood, or effusion. When the intellects are deranged and delirium comes on, the pia mater or arachnoid membrane over the superior parts of the brain is inflamed. These membranes are inflamed at the base of the brain, especially in children; or when slight headache is succeeded by delirium or coma, and convulsions of both sides of the body appear or reappear. There are two forms of delirium, one caused by increased vascular action in the brain, the other by deranged innervation or sensorial power: the one is accompanied by the symptoms of high vascular action, as in fever or phrenitis; the other by pallidity of countenance and great prostration of the vital powers, as after hæmorrhage, excessive depletion, inanition, hunger, or profuse diarrhœa. The treatment will be depletion in the first, and stimulation in the other. In those cases in which both are combined, the treatment must be varied. The hallucinations and expressions are presented in a great variety of forms, as might be expected from the cultivation of mind, and the pursuits of individuals: their extreme loquacity, low muttering, loud singing, and exclamations differ much.—See *Phrenitis* and *Menigitis*.

Headache, succeeded by fever, and increased by noise, light, or exertion, is a symptom of phrenitis, acute or chronic; but some-

times there is intense headache, or rather circumscribed pain in the temple or other part of the scalp, which is suddenly excited in nervous dyspeptic persons by exposure to cold, and will be relieved by stimulation, brandy, or spirit and water, ammonia, &c., and not by depletion. Headache also arises from disorder of the stomach in bilious persons, or after severe hæmorrhage, and then is not caused by determination of the blood to the part. Hemicrania is usually confined to the scalp, may be periodical, or arise from rheumatism of the occipito-frontalis fascia. Vertigo also depends upon too much or too little blood in the brain; convulsions and delirium occur under similar conditions. The nervous delirium of drunkards does not in general depend upon vascular action, and is speedily cured by the exhibition of the habitual stimulus which I first proposed in 1827.—(See *Lancet*.)

In delirium caused by excessive vascular action, the patient cannot be roused by speaking loudly close to his ear or by pinching different parts of his body, or even by slight percussion on the cheek or arm. This delirium is preceded by loss of memory and articulation; the senses of vision, hearing, taste, and touch, are also gradually diminished on its approach, or entirely abolished.

Coma often depends on cerebral congestion, but may arise from exhaustion of the vital powers, as in the hydrocephaloid disorder hereafter described. Inflammation of the substance of the brain is characterised, according to the French, by absence of delirium, rapid insensibility, urinous smell, and paralysis, with involuntary contraction of the flexor muscles. Paralysis of the upper extremities and respiratory muscles is caused by disorder of the cervical portion of the medulla spinalis; and when the lumbar portion is deranged, there will be paralysis of the lower extremities, rectum, and bladder. If the spine is excurvated, its membranes may be inflamed.—See *Diseases of the Spinal Marrow*.*

The sensibility of the limbs may be increased, diminished, or very painful in diseases of the brain or spinal marrow. There is sometimes numbness, varieties of transient pains, or a sense of creeping, which usually passes along the courses of the large nerves. There is sometimes a sensation, as if air passed along the limb, and this is called aura, and there may be a sensation of heat, burning, cold, &c. in the inferior or superior extremities.

When the central parts of the brain are inflamed, as the corpus callosum, septum lucidum and fornix, there is a great increase of sensibility in the integuments of the body, which are pained on pressure, and often give rise to error, as abdominal inflammation is suspected when it is absent. Hysterical women are extremely subject to tenderness of the abdominal parietes. The state of the face, eyes, lips, neck, body and limbs, should be ascertained in the diseases of the brain. Thus the pupils may be dilated or contracted and present oscillations, the globe of the eye may be agitated,

convulsed, or the direction of its axis may be present, which is termed strabismus. The eyelids may be closed by paralysis of the lids, or by spasmodic contraction of the orbicularis muscle, which is caused by irritation in the brain.

The head and trunk may be drawn backwards or forwards, and this generally depends on irritation at the base of the brain, or in the spinal column.

The motions of the limbs are to be duly observed. When there is paralysis of the upper limbs, with or without rigidity, there is disease of the optic thalamus; and when there is loss of power of the lower extremities, with or without rigidity, there is lesion of the corpora striata.

In diseases of the brain, there may be convulsions of a few or several muscles, there are tremors of the limbs, or automatic motions of them, as in hydrocephalus, when infants carry one or both hands involuntarily towards the head. Subsultus tendinum or starting of the tendons, is a common symptom of cerebral disease, fevers, and of approaching death.

As there is a strong sympathy between the brain and stomach, there is generally vomiting in incipient phrenitis.

The circulatory system is also deranged. The pulse is slow in certain lesions of the substance of the brain, and when there is effusion of blood or serum; but it is frequent in the first stage of inflammation of the membranes of the brain, as in hydrocephalus, also in incipient encephalitis or inflammation of the substance of the brain, particularly when this is complicated with gastro-enteritis or muco-enteritis, as in cases of low remittent fever of infants, erroneously called worm fever by parents, as well as some medical practitioners.

The respiration is also deranged by cerebro-spinal inflammation or irritation. (See *Signs afforded by Respiration*.) It may be stertorous, interrupted, quick, slow, sighing, or puffing through one commissure or angle of the mouth. It is laborious and difficult, when the spinal cord is injured, and in a greater degree in proportion as the affected part is near the neck; and suffocation may be threatened, when it occurs near the fourth or fifth cervical vertebra below the origin of the phrenic nerves. The state of the bowels and urine should be examined in acute diseases of the brain. There is often paralysis of the bladder; the urine becomes ammoniacal, is absorbed into the system, and produces a peculiar fœtor compared to the smell of mice. Again, the bladder may be inflamed by it, when there will be all the symptoms of cystitis, with threads of mucus or small clots of blood in the urine. It is also borne in mind that injury inflicted on the spine is generally followed by paralysis of the urinary organs—a constant effect of diseases of the medulla spinalis; while Mr. Stanley has lately proved that disease of the kidneys will cause paralysis of the inferior extremities without any spinal affection.

*Phenomena and Signs afforded by the Heart.**—The phenomena are four: 1st, The extent the movements of the heart are perceptible; 2d, The impulse which they communicate; 3d, The sound which accompanies them; and 4th, Their rhythm, or order of their succession.

Movements of the Heart.—In most instances the pulsations of the heart are heard in the præcordial regions, between the fifth and seventh ribs, and at the inferior part of the sternum, or in the epigastrium. The motion of the left cavities is perceptible in the former; that of the right in the latter. In fat persons we sometimes cannot distinguish the motions of the heart by the hand; and the space in which we detect them by the stethoscope is not more than a square inch; but in thin emaciated persons, or in those who have narrow chests, we hear them in the inferior and middle part of the sternum, under the left clavicle, and even on the right side of the thorax. There is nothing unnatural in hearing the actions of the heart in these situations; while it is greatest in the præcordial region, and diminished in the other situations. The unaccustomed extent of these actions denotes a passive dilatation of the heart. But it is always to be recollected that accidental causes can produce a temporary increase of the heart's actions; such as nervous agitation, fever, diseases, and malformation of the chest.

The stopper or funnel should be retained in the stethoscope, when we examine the heart, as it conveys the sound better than by the open stethoscope, on the principle of acoustics.

Impulse.—When the hand, ear, or stethoscope is applied over the cardiac region, a shock is perceived, which is called *impulse*. It is strong according to the thickness of the walls or parietes of the heart, and is so powerful in some instances as to elevate the head of the auscultator. When strong, it indicates hypertrophy; when absent, dilatation of the heart. In ordinary cases it may be imperceptible to the hand, but distinctly heard by the cylinder; and, on the contrary, the hand may discover it in thin and excitable persons, when the instrument cannot enable us to detect it. In general it is distinguishable in the præcordial region, at the epigastrium, when the sternum is short, also below the left clavicle, and slightly at the back, when the walls of the heart are thickened and dilated at the same time. The impulse of the heart diminishes or nearly ceases, whenever there is great dyspnoea, as in hepatization of the lung, pleuritic effusion, pulmonary oedema, congestion of the lung, or asthma.

It is increased by walking, riding on horseback, the chase, ascending stairs, by nervous agitation, palpitations, fever, especially

* For a full account of the Physiology and Pathology of diseases of the Heart, see my "*Manual of Auscultation and Percussion*, applied to the Physical Diagnosis of Diseases of the Heart, Lungs, and Abdominal Viscera."

when the heart is firm and thickened, and of course still more when it is hypertrophied.

The Sound.—In a healthy adult there are two distinct sounds (however small the heart may be) which are discoverable by the stethoscope, after ordinary means fail : the one is clear, sharp, and analogous to that made by the clapper valve of a bellows, and corresponds with the systole of the auricles ; the other is dull and lengthened, is synchronous with the arterial pulsation and the impulse, and indicates the contraction of the ventricles.

The sounds of the right cavities are most distinctly heard at the base of the sternum ; those of the left at the cartilages of the ribs ; and all differences between them denote pathological conditions.

These sounds are heard more plainly when the walls of the heart are thin and more feeble, as in persons of a spare habit : while in those of a full habit, or those affected with hypertrophy, the sound of the ventricles is not heard, and that of the auricles is dull and scarcely audible.

The sound of the auricles is duller and more indistinct when the edge of the lung is stretched over the part, or entirely covers it ; in this case, the absence of impulse proves that the diminished sound is not caused by hypertrophy. In such instances the sound is marked by the respiratory murmur over the heart, or that caused from the expulsion of the air by the compression of the heart.

There are various theories on the cause of the bruits or sounds of the heart, which are now referred to the motion of the valves both in France and in Great Britain and Ireland, 1836, and these I have published in the *London Medical and Surgical Journal*, 1836, and will be found in my forthcoming *Manual of Auscultation and Percussion*, applied to diseases of the Heart, Lungs and Abdominal Viscera."

The *rhythm* is meant to express the order in which the different parts of the heart contract, of the respective durations of these contractions, of their successions and relations.

The movements of the heart are as follows : each contraction of the ventricles coincides with the dilatation of the arteries, and is accompanied by a dull, prolonged sound ; this is instantly followed by a clear, quick sound, appearing to intercept the former abruptly, and is caused by the contraction of the auricles ; a moment of repose succeeds, when the ventricles act again, and in this manner the succession proceeds.

The sounds of the heart's contractions may be duller, clearer, or louder than natural, or sounds altogether new may be produced ; the latter are designated *bruit de soufflet*, bellows sound, *bruit de râpe*, rasp or file sound, *craquement de cuir*, new leather sound

The *bellows sound* may accompany or replace the sounds afforded by the contractions of the ventricles, auricles, or large arteries ; it is most commonly heard during ventricular contraction ;

and it very often exists in one ventricle only: it is rarely constant, it ceases and reappears suddenly, it may be continued or intermittent, and may be excited by slight mental emotion. It is observable in hysteria and hypochondriasis, and in those predisposed to hæmorrhages. It may be found in any of the large arteries, though absent in the heart, and *vice versâ*. It is sometimes discoverable in the recumbent position only. It may exist in perfect health; but is more frequently detected in hearts affected with dilatation and hypertrophy, and in narrowing of the orifices. Even in all these cases it may be present one day, and absent the next.

The *bruit de soufflet* is produced by various diseases, and when constant indicates cartilaginous disorganisations of the valves of the heart. It may exist in one or two, or the four cavities of the heart.

The *rasp or fle sound* is heard in the heart only, and may accompany the contractions of the ventricles and auricles. When once developed, *it never ceases*, and is said to arise from the contraction or narrowing of an orifice of the heart. The obstructed orifice may be discovered by the sound being more distinct during the contraction of the auricle or of the ventricle, or by being heard under the sternum or the cartilages of the ribs. This sign indicates contraction of the orifices by cartilaginous deposits or ossification of the valves. When it responds to the systole of the ventricle, the sigmoid valves are affected; and if it occurs during the contraction of the auricles, it occupies the auriculo-ventricular orifice.

The *new leather sound* is compared to the crackling produced by sitting upon a new saddle, exists only at the heart, and accompanies the contraction of the ventricles. It has never been heard except in pericarditis.

The *purring sound* is compared to the murmur of a cat when caressed, and constantly accompanies the rasp sound. It indicates a mechanical obstruction to the course of the blood by contraction of some of the orifices of the heart.

A diminution of the sounds of the heart is caused by increased thickness of the walls of the organ, and, if combined with weakness of impulse, it indicates softening of structure.

The greater number of lesions of the valves and orifices of the heart are followed by hypertrophies of the ventricles; and in such cases the primitive lesion and consecutive hypertrophy occupy but one ventricle, and this affects the normal one so that it is impossible to distinguish to which the bruits belong. It is also difficult to distinguish the anormal bruits caused by disease of the auriculo-ventricular valves and that of the arterial valves. If the bruit is heard during the contraction of the ventricles we conclude that the aortic valves are diseased, and the presumption will be much stronger if the anormal sound is heard over the aortic orifice. When the bruit is caused by reflux of the blood from the ventricles into the auricles, it is heard better, according to M. Rouanet,

towards the apex of the heart than near the aortic orifice. When the anormal bruit is heard during the dilatation of the ventricles, it is probable that the disease exists in the auriculo-ventricular orifices, and depends on the passage of the blood through the diseased aperture.

According to M. Bouillaud there is another double bruit de soufflet in organic contraction of the orifices, whether during the dilatation of the ventricles, when the incompetent valves are the sigmoid, or during the contraction of the ventricle when the disease is in the ventricular valves.

Bruits caused by Diseases of the Pericardium.

Bruit de Frolement.—This is compared to the sound made by rubbing silk or taffety. This depends on a diseased state of the pericardium or its opposite surfaces which rub against each other during the contraction and the dilatation of the heart in incipient pericarditis, when they are dry and tenacious, before false membranes are formed, or when they begin to cover the surfaces.

Bruit de Cuir neuf. Craquement de Cuir.—New leather sound. This was compared by M. Collin to the crackling of a new saddle when placed on a horse. It is caused by the pulling of dense false membranes which give considerable resistance during the movements of the heart. It has never been heard except in pericarditis.

Bruit de Racllement.—Scraping or grating sound. This was perceived by M. Bouillaud in the left præcordial region, and was caused by a stony concretion which raised the visceral pericardium.

Bruits de Souffle, de Scie, de Râpe.—Though these may belong to diseases of the heart itself, they sometimes accompany lesions of the pericardium. They are produced by the friction of the two surfaces of the pericardium against each other, covered with false membranes, during the stroke of the apex of the heart. The bruits attendant on lesions of the pericardium are more superficial and circumscribed than those of lesions of the heart.

The anormal bruits of the heart are synchronous with the movements of that organ, while those of respiration coincide with inspiration and expiration.

Cliquetis Metallique, Tiutement Metallique, Tiutement Auriculo-metallique, is the term applied to the sound produced by the percussion of the apex of the heart against the walls of the chest during the contraction of the ventricle. It is distinctly heard in those nervous subjects who suffer from palpitations. It does not prevent us from hearing the two normal bruits of the heart, so that the pulsation is very slight, on account of the very small quantity of blood. The contractions of the ventricles or auricles may be longer or shorter than natural. When those of the ventricles are lengthened, and also in the period of repose, hypertrophy of these cavities is indicated, and is more considerable in proportion as the duration of the contraction is prolonged.

When the contractions are rapid and the repose shorter than na-

tural, this variation may coincide, either with quickness or slowness of the pulse, and is not considered characteristic of any morbid alteration. The duration of the contractions of the auricles is rarely observed to be lengthened or shortened. They sometimes anticipate those of the ventricles, especially during palpitations, the effect of which is, that the auricular sound is masked by the ventricular, and in hypertrophy becomes imperceptible. Sometimes there may be one contraction of the ventricles and two or three of the auricles, or the reverse; but these phenomena do not indicate disease, nor even affect the pulse. In some instances there are two or more equal contractions, and then we find one or more weaker or irregular, or a complete intermission; under these circumstances we may expect disease.

Sometimes the contractions are so frequent and irregular as to render it impossible to analyze them, and then they indicate organic disease.

The action of the heart may be so violent as to be heard at a distance of one or two feet, or distinctly seen on the surface of the chest. This may occur without any disease, or be symptomatic of dyspersia, hydrothorax, ascites, utero-gestation, &c.; but is characteristic of hypertrophy, and often arises from gaseous exhalation in the pericardium or stomach.

PATHOLOGY OF THE HEART.

Auscultation of the Heart in a Morbid State.—Auscultation of Arteries and of Pregnancy.

Anormal Rhythm.—The abnormal rhythm of the heart consists in the *rarity* or *slowness* and *frequency* of the beatings, in their *irregularity*, and in their *intermittence*.

The *rarity* or *slowness* and *frequency* of the pulsations are easily understood.

The *irregularities* exist when there is an unequal interval between the beatings of the heart. Sometimes these are constant, and there may be but one irregularity in several pulsations. This may be shorter but not more feeble than the rest. It differs from false intermittence by its suddenness. In some cases the first bruit is prolonged and the second feeble, and *vice versâ*.

When the ventricular systole or contraction is extraordinarily prolonged, M. Bouillaud says that the pulsations of the heart are (*filés*) spun out.

At other times we hear two or three bruits synchronous with the dilatations of the ventricles; these rapidly succeed it, and form the *bruit de rappel* ("recalling or repetition"). In other cases we count two or three motions of the systole for one of the diastole.

Intermittence is a sudden and instantaneous suspension of the pulse. Laënnec used the term *true* intermittence when the contractions of the heart were suspended as well as the arterial pulsations.

False intermittence is applied to the feeble contractions of the heart appreciable by auscultation, when those of the arteries cannot be perceived. The pulsation is sometimes extremely feeble instead of being completely suspended.

The duration of intermittence is not always the same ; it is sometimes regular except in one beat, at other times this is shorter, or longer, or stronger, or, like the pulse, it may only occur every second, sixth, or twentieth pulsation. But in most cases its return is regular after a certain number of pulsations ; but varies in fevers and other acute diseases at the approach of death.

M. Bouillaud has described a species of false intermittence which he has designated a kind of *faux pas* of the heart, which arises from the left ventricle not being properly filled with blood during the systole,—a common occurrence in contraction of the auriculo-ventricular orifice.

Rhythm.—The ventricular contraction may be lengthened, as also the period of repose, which indicates hypertrophy of the ventricles.

The contractions and repose may be shorter and quicker than natural, the pulse may be slow or quick, but these signs are not indicative of disease.

The contractions of the auricles are rarely shortened or lengthened : they sometimes anticipate those of the ventricles, especially during palpitation ; hence the auricular sound is masked by that of the ventricles, and bad cases of hypertrophy may become imperceptible.

Again, the auricles may contract two or three times during one systole of the ventricles, or *vice versâ*, and the pulse does not correspond with these durations. These irregularities do not indicate any particular disease of the heart.

In some cases of organic lesion the contractions are so rapid and irregular that it is impossible to analyze them. Intermission in the action of the heart and pulse may be present in ordinary health, but most commonly occurs towards the approach of death in acute diseases. Persons so constituted may lose the intermission during disease, and have it return during convalescence or the restoration of health.

Palpitations, irregularities, and intermissions of the heart's action may be symptomatic of diseases unconnected with the heart, and may occur or continue though the person is in perfect health. In such cases there is functional disorder only, which may, if long continued, terminate in organic disease.

The exploration of the heart's action by means of the stethoscope, enables us to detect the real condition of the circulation ; and furnishes a much more certain indication than the pulse of the necessity of depletion.

Stethoscopic Signs in Diseases of the Heart.—*Hypertrophy* : augmentation of impulse, diminution of sound, and of the extent to which the actions of the heart can be heard. When the left

ventricle is affected, the impulse is very strong between the fifth and seventh ribs, and may be sufficient to elevate the observer's head: sound duller and more prolonged than natural; systole of the auricle very short and slightly sonorous. When the right ventricle is affected, a stronger impulse beneath the lower portion of the sternum; sound obscure, but not so dull as in former variety. When the left ventricle is very much enlarged, it is more easily heard than in the left cardiac region, as the right becomes posterior and is not heard at all. The swelling and pulsation of the jugular veins are always constant in hypertrophy of the right ventricle, but rarely when the left is affected; and therefore the diagnosis is easily formed. When both ventricles are simultaneously affected, the impulse is as well marked in the right as in the left præcordial regions.

Dilatation of Left Ventricle.—Impulse in left cardiac region diminished; sound augmented over a large surface. When right is affected, sound clear and distinct under the sternum, and between the fifth and seventh ribs of the right side; impulse feeble.

Dilatation with Hypertrophy.—This complication is more common than either of its constituents in a simple or idiopathic form, and is characterised by impulse and sound at the same time. When the ventricles contract, systole of the auricles very sonorous.

In these cases, the body of the patient, however calm, and the bed-clothes, are shaken at every contraction of the heart.

Hypertrophy of one Ventricle, with Dilatation of the other, is by no means rare. The diagnosis can readily be formed by attention to the signs of both diseases.

Hypertrophy and Dilatation of the Auricles are very rare, never isolated, and generally complicated with contraction of the auriculo-ventricular orifices.

Diseases of the Valves, Cartilaginous or Osseous: rasp sound, and purring tremor of the auricle, when the mitral valve is affected; of the ventricle, when the sigmoid valves of the aorta are indurated. The tricuspid or sigmoid valves of the pulmonary artery are seldom affected: then we find rasp and bellows sounds under the sternum. *Verrucose vegetations* on the valves diminish the orifices, and are attended by rasp sound, less dull, and more resembling the bellows sound; while the purring tremor is less sensible to the hand: in some cases, the rasp and bellows sounds succeed each other, and there is a sound like the cooing of a dove.

Induration of the Heart is characterised by the same signs as hypertrophy.

In the following diseases, the stethoscopic signs are dubious.

Pericarditis is indicated by the new leather sound: and percussion of the præcordial region yields a duller sound than natural: still the disease is oftener suspected than recognised.

Hydro-pericardium.—Pathognomonic sign, a flat sound as in the last disease, and the actions of the heart seem to affect the hand and the ear, as if through a soft medium.

Aneurism of the thoracic Aorta.—Pulsations on the superior and anterior part of the chest, isochronous with the pulse. When the abdominal aorta is affected, pulsation over it is the only sign.

Nervous palpitation of the Heart is characterised by the impulse being strong at first, the sound clear but not extensive, the bellows sound and purring thrill being perceived throughout the arterial system.

Signs afforded by the Pulse.

Pulse, pulsus, pulsatio, sphymus, pouls, French—das puls, Ger., is the beating of the heart, the movement and dilatation of the arteries, considered in their relation to health and disease. The knowledge of the natural pulse, and of its modifications in different diseases, was denominated the *sphymic art, ars sphymica*, by former authors.

The natural Pulse of the Arteries.—In the normal or natural state the pulse of an adult is easily felt, is soft, equal, regular, neither too frequent nor too slow; it beats from 65 to 70, or 75 times in a minute, the pulsations being at an equal distance from each other. It is sometimes slower in health, and does not exceed 35, 40, or 50. Napoleon's pulse was 54. Dr. Graves mentions a lady in whom it was 35; and Dr. Jackson of Philadelphia another, in whom it could not be felt in any part of the body. In this last instance, it was natural before a severe attack of rheumatism. Dr. Thomas Williams knew a man who enjoyed perfect health, and had a pulse not exceeding 15 beats in a minute. The pulse may be intermittent or irregular in health, and become regular during disease, and after convalescence assume its former condition. In new-born infants it beats, according to Heberden, from 120 to 140 in a minute; about the second year 100; and at puberty about 80. In one case of a man, aged 30, it was 26, and in another only 12: Lizari found it only 11, while Wendt counted it at 243. In adults it is full and more developed than in infancy and adolescence; in woman it is 10 or 12 beats more than in man; in old age it is weaker, larger, harder, and from 50 to 60. Dr. Falconer was mistaken, when he maintained that the pulse in old age was more frequent than in infants. It is more frequent and strong in those of sanguine or bilious temperament; it is feeble and rare in lymphatic and melancholic subjects. It is more frequent after conception, and very much accelerated during parturition. It is said to differ according to stature, but the modifications from this cause have not been accurately determined. As the human body is influenced by the diurnal revolution, the motion of the arteries has been found to vary at different hours of the day. Dr. Bryan Robinson having accurately observed the variations of arterial motion, constructed a table, by which it appears that the pulse is slower in the morning than at any other hour of the day; that after mid-day it is more

frequent; then it becomes slower from two to eight o'clock, but beats 8 or 10 strokes more than in the morning; it is less frequent during sleep; and about two hours after midnight it rises and falls until seven or eight o'clock. He concludes that these variations of the pulse coincide with those of the barometer and thermometer. It is also well known to physicians, that the pulse is more frequent in the evening in all diseases accompanied by fever. It varies according to the posture of the body, a fact first noticed by Dr. Macdonnell of Belfast, subsequently by Dr. Thomson, in his work on Inflammation, since by Dr. Stroud, and recently by Dr. Graves in the *Dublin Hospital Reports*, 1830, v. 5.

The last-named physician states he ascertained, by numerous experiments, that in healthy persons the pulse in the erect posture is more frequent than in the horizontal, by from 6 to 15 beats in the minute; and if the pulse is but 60, the difference is generally not more than six or eight, but if it is raised to 90 or 100 by moderate exercise, the difference may be 20 or 30. The body being placed with the head downward, and the feet upward, no further retardation of the pulse was effected; neither, on the other hand, was it accelerated beyond the number observed in the horizontal position.

Method of examining the Pulse.—There are certain rules which must be observed in making the exploration of the pulse.—1. We should be acquainted with the characters of the pulse in the different periods of life, in the sexes, temperaments, according to corporeal development, and as influenced by moral and physical causes:—it is manifest that without this knowledge we cannot distinguish, with accuracy, its condition in various diseases.—2. The temperature of the hand must not be too high or too low, and that of the patient must be taken into consideration.—3. The examination must not be made on entering the chamber of the sick, as the approach of a medical practitioner generally agitates the mind of the patient, and causes an increase of the moral and physical powers, and consequently of the action of the heart and arteries. This fact must be remembered whenever the physician is a stranger, and attends for the first time. The pulse will be also accelerated after the ingestion of food, stimulating drinks, exercise, mental emotions, more especially when the patient is delicate or feeble, and also after laughing, coughing, groaning, hiccapping, crying, or much speaking. It is therefore difficult to explore the pulse, in consequence of these inconveniences, but an attentive and cautious practitioner will obviate all of them, by feeling the pulse soon after his visit, and again before his departure; and by carefully estimating its characteristics on both these occasions, he will generally arrive at a correct conclusion. It is held that the exploration of the pulse is most correct in hospitals, where patients, expecting the medical attendants, are free from emotions and all excesses.—4. The patient should be placed on his back, or in the sitting posture, with the

arms free from pressure, tight clothes, or a ligature, or he should repose on his side, and in such case the pulse in the uppermost wrist must be felt.—5. The index and middle fingers are to be applied over the radial artery, a little above the styloid apophysis of the radius, and the fore arm being slightly flexed between pronation and supination, and the arm extended. The thumb is to be placed on the posterior or dorsal surface of the wrist. Dr. Rucco recommends the four fingers to be placed along the artery, as in certain diseases the pulsatile force may differ in a short extent of the artery, and may not be detected, unless the fingers are applied as he suggests. Too much pressure must not be made with the fingers, as it would stop the pulse or change the position of the artery, and lead to an erroneous conclusion. The fingers ought to be removed from the artery for a few seconds, as their sensibility will be diminished by much compression. In many cases the artery cannot be felt by the ring and little fingers, and in most persons the sense of touch in these is much less than in the index and middle fingers. The thumb or extreme points of the fingers ought not to be placed on the artery, as the pulsations of these might be confounded with, or mistaken for, those of the patient. It is on record that practitioners who fell into this error gravely declared they had distinctly felt the pulse of a corpse six hours after death. The prominent parts of the fingers should be placed over whatever artery whose pulsation is to be ascertained. In fat people, considerable compression is requisite to feel the pulse, in consequence of the quantity of cellular membrane which covers the artery. In old persons there is little fat, the arteries are superficial; little pressure with the fingers is necessary, and we can often observe the pulsation. There is no rule as to the length of time requisite for the examination of the pulse, but it ought to be felt for a minute or two. A watch with a second hand is necessary to ascertain the number of pulsations in a minute. Some use a minute sand glass. The pulse ought to be reckoned for five or ten seconds at different times, and then for half a minute and a minute, for an intermission or irregularity will be detected in the latter space of time which could not be observed in the former. It is necessary to feel the pulse in both arms, as there is always a difference in the radial arteries, that of the right arm being larger; and the pulsation may be regular in one, and irregular in the other wrist, or it may be absent for months in one arm (Parry) or in both, according to Haller and Jackson. In some cases the radial arteries either deviate from their usual course, by turning over the radius higher than the wrist, or they may take their ordinary track, and yet not pulsate. In such instances, the carotid, temporal, or brachial arteries must be examined, or the heart itself. The pulse may be full in one wrist and small in the other, and hence the necessity of examining both. It has been said that we should feel the left wrist with the right hand, and reciprocally; but this is un-

necessary, as the sense of touch is generally the same in the fingers of both hands, unless when they are indurated in one who has practised much on some stringed instrument.

The pulse is not of the same frequency in any two individuals. It is very feeble in some, indeed scarcely discernible, though the health is excellent. In old persons, who are thin, it is generally strong, and may deceive a young practitioner. Tumours may press on the brachial artery, or this vessel may be aneurismal, and in both cases the pulse will be affected at the wrist. The right arm is larger and more developed in most people, the pulse is larger or fuller, while the reverse occurs in the left-handed. The pulse will be full in one arm, and indicate venesection, while it is small and soft in the other, and seems to require stimulants. When this diversity exists, we should feel the heart. But sometimes the pulse is full at the heart and small at the wrist, as in contraction of the auriculo-ventricular opening. There may be extensive disease of the heart, and the radial pulse be natural. Auscultation will enable us to determine most of the diseases of the heart, and ought to be universally studied by medical practitioners.

The illimitable varieties and modifications of the pulse led Celsus to call it a *res fallacissima*, and Parry to denominate it a deceptive criterion. Nevertheless the pulse greatly assists us in our diagnosis, prognosis, and therapeutics. The chief objections urged against depending upon the pulse as a means of diagnosis, are, that the heart and arteries, though intimately associated, are yet, to a certain extent, independent of each other, (*Elements of Anat. by Dr. Quain*,) that in pneumonia, pleuritis, enteritis, peritonitis, apoplexy, &c. the pulse may be nearly natural and not characteristic of such diseases; that in hypertrophy of the heart the pulsations against the side may be violent, and the pulse weak and feeble at the wrist; that in hypertrophy of the right side of the heart, the pulse being produced by the left ventricle, it may continue natural or scarcely affected. Admitting all these objections, it does not follow, in my opinion, that we ought to discard the pulse as a diagnostic, for fully as many objections might be adduced against auscultation. No one would depend upon the pulse alone as a diagnostic, as every judicious practitioner examines every physiological system, cerebral, digestive, &c. in taking the history of his patient. Some of the veins may pulsate synchronously with the arteries: as jugulars, when in consequence of aneurism of the right cavities of the heart, a reflux of blood is determined into them, which may be occasionally observed even in the neck. When there is a communication between an artery and vein, there will be pulsation in the latter, and in like manner when a vein is situated over an artery, as we sometimes remark at the bend of the arm. In this last case such a vein ought not to be opened, if another can be found, unless by a careful and scientific medical practitioner.

The modifications of the pulse are—*frequency, slowness, force or*

strength, rhythm, and regularity. In the state of disease, the pulse is *frequent or rare, quick or slow, hard or soft, great or small, strong or feeble, regular or irregular, unequal, intermittent, and absent.* One, two, or three of these qualities may be combined.

Pulsus frequens, frequent pulse. exists when the number of beats in a minute exceed those in health at the different ages. This was said to be a sign of febrile diseases by Galen, Boerhaave, Hoffman, and a host of others; but Fordyce well observed, that fevers might exist and prove fatal without this symptom.—*Dissertation on Simple Fever*, p. 70. This condition of the pulse is, however, generally observed in febrile and inflammatory diseases.

Pulsus rarus, slow or sluggish pulse. was opposed to the frequent, and also beats less than the natural. It depends on diminished irritability in the heart, is caused by cerebral oppression, as in apoplexy, compression of the brain, hydrocephalus, narcotism, and intense cold. It is sometimes called a jerking pulse; it is a bad sign in fevers and cerebral affections.

Pulsus celer, quick pulse. is generally confounded with a frequent one, as is well illustrated by nearly all the translators of Dr. Cullen's Nosology, who render his pulsus frequens a quick pulse. The first is that in which the artery suddenly strikes the finger, causing a fewer number of pulsations in a minute, while the second is that in which there is a great number of pulsations in the same space of time; so that the pulse may be quick and rare, slow and frequent, quick and frequent, slow and rare. Darwin has well explained the distinction in question. The pulse will often be slow as to number, but quick as to the impression on the finger, as in apoplexy, and cerebral oppression from narcotism. "We must not," says Darwin, "confound frequency of repetition with quickness of motion, or the number of pulsations with the velocity with which the fibres, which constitute the coats of the arteries, contract themselves."

Pulsus iners vel tardus, a slow pulse, is opposed to the *quick*, and has relation to each pulsation; it arises from the same cause as the rare pulse. When this occurs in fevers and other acute diseases, it indicates a favourable change.

Pulsus durus, a hard pulse, is compared to the stroke given by the string of a musical instrument; it is supposed to depend on the contraction of the muscular coat of the artery; it is small and generally quick; it indicates enteritis, peritonitis, and, according to Hoffman, "pain, spasm, and convulsion."—(*De Pulsuum Natura*, &c. p. 17.) When small at the same time, it is sometimes called a *wiry* pulse. Hoffman said it was caused by spasm of the heart and arteries; Hunter referred it to this condition of the latter alone; (*Treatise on the Blood*;) and Fordyce to incipient contraction of the artery. (*Dissert. on Simple Fever*.) It is found in pleuritis, synocha, inflammations; and acute rheumatism, but in such cases it is also strong and full. It is sometimes called an obstructed pulse;

it requires venesection, by which, if small, it becomes fuller, and the blood on cooling exhibits the buffy coat.

Pulsus mollis, a soft pulse, is caused by relaxation or debility of the muscular coat of the artery; it is often weak and sometimes dull; it supervenes on the hard pulse after venesection, and often accompanies convalescence, and in disease indicates a remission or improvement. But it is not always favourable, for we find it in protracted pneumonia, and then it is weak, (*Boerhaave Institut. Rei Med.* 962, *Cullen* cccxxvi.) while in the accession of continued fever it presages that the disease will be formidable, and that there will be great debility in the last stage. (*Fordyce, Op. Cit.* p. 53.) It is more common with the female than with the male; is often induced by vomiting, and is a sign of delicate or bad health.

Pulsus magnus, a great pulse, is said to be present when the artery dilates more than naturally, though the number of pulsations may be normal or fewer. This quality is supposed to arise from weakness, and not so much from fulness of the artery; and therefore it is inferred that the pulsations are slower than when the pulse is stronger. It exists in coma, vertigo, and lethargy, and the diseases are more dangerous, the greater the pulse.—(*P. Home Principia Med.* p. 223.) This pulse seldom indicates venesection.

Pulsus parvus, a small pulse, was opposed to the great, and was attributed to a want of power in the heart to propel the blood, as in cases of debility; or to a contracted state of the artery, as in enteritis, &c. When it occurs in typhus, after hemorrhages and fluxes, it is usually soft, weak, and frequent; indicates great debility, and requires both opium and stimuli. It is a bad sign towards the termination of typhus, visceral, and other inflammations, small-pox, measles, scarlatina, intestinal irritation, scurvy; in a word, it indicates great debility, or prostration of the vital powers. But when the pulse is small, hard, sharp, or wiry, as in enteritis, peritonitis, carditis, &c. it requires venesection, by which it becomes fuller and softer.

Pulsus plenus, a full pulse, is that in which the artery does not narrow itself after each dilatation, but on each pulsation percusses the finger with a full, soft, obtuse stroke; it gives a weaker stroke to the finger than an artery, whose pulse is stronger and freer, which is called *great*, as already described. It was said to depend on plethora; it precedes natural or difficult menstruation and hemorrhages; it may be quick or slow, and in general requires venesection.

Pulsus validus seu fortis, a strong pulse, depends on the energy of the ventricular contraction, and often upon hypertrophy of the left ventricle. Those who enjoy good health and constitutions, who pursue laborious employments, and who live regularly, have this kind of pulse. It is characteristic of synocha, various inflammations, hemorrhages, especially from the nose, lungs, stomach,

intestines, kidneys, uterus, and other parts of the body, and often precedes perspiration, by which intermittent and remittent fevers terminate. It shows that the sanguineous circulation is vigorous, that the vessels are easily excited, and it admonishes us of the necessity of diminishing the mass of blood; it indicates plethora, and warrants depletion.

Pulsus debilis, a weak pulse, exists when the artery dilates very sparingly, indicating a low degree of irritability in the heart and exhaustion of the vascular system: it is generally frequent, thready, compressible, and easily "put out," or stopped; it often precedes death, and is a sign of debility; it is observed in carditis and pericarditis, on the accession of the cold stage of intermittent fever, during the pain arising from biliary calculi, in primary or secondary affections of the stomach, in consequence of a blow on this organ, or of full doses of digitalis. This kind of pulse is felt in phrenitis, (Dr. F. Home,) in certain cases of amenorrhœa (Darwin,) and in elephantiasis. (Aretæus.) Dr. Gregory said, it exists in persons of the lymphatic temperament.

Pulsus regularis, a regular pulse, is that in which all the pulsations are alike.

Pulsus irregularis, vel inequalis, an irregular or unequal pulse, is when the pulsations do not correspond to each other, in frequency, quickness, and force. There are various inequalities, viz. it is called *dierotus, bisferiens, redoubled, bisiliens*, when two strokes follow each other rapidly, and are separated from the two succeeding by an interval of repose, and this is said to indicate the approach of hæmorrhage; *inciduus, incidens, incident*, when the second pulsation is weaker than the first, the third than the fourth, after which there is a stroke as strong as the first, and so on: the old writers held that this predicted critical perspiration and dissolution of disease. (Nihell.) Some persons have an irregular pulse in health, as was exemplified in the case of Addison, as attested by his biographer Tickell. Another pulse was termed *myurus*, when the second pulsation is weaker than the first, and several beats run into each other. This is also called a vermicular or fluttering pulse, is stopped by the slightest pressure, and indicates low fever and disease of the brain.

Pulsus intermittens, an intermittent pulse, exists when after one or more beats there occurs a cessation or repose. It was held a certain sign of approaching death by Galen, (*De Presag. et Pulsibus*.) but is the ordinary one of some persons in health, becomes regular during disease, and on recovery assumes its usual character. This was well illustrated in the case of a lady in Russell-square, whom I once attended, and also in a learned judge. This kind of pulse may be caused by disease of the heart, hydrops pericardii, hydrothorax, hydrocephalus, compression or concussion of the brain, vermination, and other intestinal diseases. It was considered a fatal sign in the last stage of fever by Solano

and Nihell, unless diarrhœa supervened, and it may be removed according to Prosper Alpinus, when the urine becomes turbid. (*De Presag. Vitæ et Mortis*, lib. iv. c. 4.) Heberden, on the contrary, maintained that it might arise from trivial causes, and was not a bad sign; while Fordyce thought it a mortal symptom when it supervened on simple fever. Abernethy agreed with Heberden, and stated that his own pulse was intermittent and irregular under mental agitation, and dissented from all who considered this kind of pulse a dangerous symptom. However discrepant these opinions may appear, it is certain that an intermittent pulse is in general a dangerous symptom in the last stage of fever or other acute diseases, as it shows that the vital powers are very much diminished.

There are divers other species of pulses dependent on physical differences easily appreciable; some of which are described by Borden and Ruco. The former describes the following species, the irritative, nervous, convulsive, non-critical, compressed, frequent, quick, hard, sharp, and compressible.

The *critical pulse* is dilated, jerking, full, strong, frequent, and often unequal.

An instrument has been lately invented by M. Kerisson for determining, in a more precise manner than heretofore, the different degrees of augmentation of the force of the contractions of the heart. He has appropriately called his instrument Sphygometre. It is not as yet employed in this country, but is likely to become a valuable means of diagnosis.

AUSCULTATION OF ARTERIES.

Laennec denominated all abnormal bruits of arteries, *bruits de soufflet*, but various distinctions have been made since his time.

The bruit, or sound of arteries, is produced by the shock of the column of blood against their parietes. It is clearly obvious then, that the bruit will vary in intensity according to the size of the artery, the strength and rapidity of the pulse, the age of the patient, the sex, constitution, temperament, habit, idiosyncrasy, &c.

The sound resembles the slight friction of one finger against another. (Bouillaud.)

This bruit is heard in the arteries in a normal state, it corresponds with each ventricular systole, or to each arterial diastole.

The bruit is increased by the compression of an artery with the stethoscope.

The *intermittent bruit de soufflet* is observed in several diseases. In an ovarian tumour which pressed on the left iliac artery, and in the following causes by M. Bouillaud.

1. When there is an aneurismal tumour, or in pregnancy.
2. When the arteries are cartilaginous or osseous with or without contraction of their calibre.
3. When there is communication between an artery and vein, as in varicose aneurism.

4. In excitement of the arterial system in thin anemic or chlorotic individuals.

Dr. Ficher, of Boston, cites many cases in which he observed the *bruit de soufflet*, by applying the ear on the head of persons affected with inflammation of the serous membranes of the brain. He designated the sound heard in such cases, *encephalic bruit de soufflet*. This fact has not however been verified by later auscultators. It was said to depend upon congestion of the brain.

Bruit de soufflet continu, continued bruit de soufflet. M. Boulaud applied this term to the *bruit* sometimes heard in arteries, and compared it to the blowing of a bellows in a smith's forge. It accompanies the systole and diastole of arteries, but is strongest during the ventricular contraction. He has also called it *bruit de soufflet à double courant*, or with a double current. An intense degree of it, he has termed *bruit de diable*, as it resembles the sound made in a play called the devil.* It does not differ from continuous *bruit de soufflet*, except in intensity.

The sound given by the arteries also resembles the cooing or murmuring of a turtle-dove, or the whistling of the air through a keyhole.

The *bruit de diable* is most commonly heard in the carotid and subclavian arteries, rarely in the crural arteries, and never to the same degree in the preceding arteries. It is sometimes heard on both sides, but it is stronger in one than in the other, but in general it is audible in one side only. It is suppressed when the artery is compressed below the part in which it was heard, and it also disappears when the stethoscope is pressed strongly over the artery. It may also disappear and reappear suddenly, without any evident cause. The change of the position of the patient alone will sometimes cause it to disappear.

Sifflement modulé ou chant des artères, modulated whistling or singing of arteries. Laennec heard a real singing in arteries, the airs of which he thought he could distinguish. This resembles the humming of certain insects, such as the fly, or of a single bee flying in a silent place.

All the *bruits*, with the exception of the *intermittent bruit de soufflet*, were heard in chlorotic or anemic individuals. It is ascribed to a bad condition of the blood, peculiar to the diseases mentioned. It is remarkable that in these we often observe edema or dropsical symptoms. M. Raciborski has frequently observed this *bruit* after very copious or profuse blood-lettings, and that it disappeared after the use of tonic regimen, which improved the condition of the sanguineous fluid.

* This sport consists in igniting a train of gunpowder, or some other inflammable matter, which gives a continuous whizzing sound, similar to the noise of a humming-top; and hence the origin of the term *bruit de diable*.

M. Pouillaud has found the *bruit de diable* most frequently in chlorotic persons who presented *embonpoint* or corpulency; and the singing or modulated whistling in thin and nervous persons.

Signs or Morbid Indications afforded by the Respiratory System.—The crepitating râle occurs in the first stage of pneumonia and œdema. The mucous râle is characteristic of catarrh, the sputa may be opaque, transparent, viscid or puriform, colourless or greenish yellow. In some cases the face is congested, there is great dyspnoea without disease of the heart, the fine extremities of the bronchi being filled with mucus. When the sputa are round and opaque with white streaks, and pectoriloquy, phthisis is indicated. Pneumonia exists, when the sound is dull, the sputa are viscid and tinged with blood, the respiration is incomplete, the crepitating râle is present: these symptoms leave no doubt, though no pain is felt. In pleuritis the pain is acute, the respiratory murmur cannot be perceived by auscultation, and there is ægophony. The metallic tingling proves the existence of effusion into the pleura, or hydrothorax, with a fistulous communication into the bronchi. When the nostrils are impervious, we may suspect catarrh, ozena, secondary syphilis. The voice is guttural in cynanche tonsillaris. A flapping sound in the trachea may be caused by inflammation of the epiglottis, though it may occur in phthisis, unpreceded by any sign of laryngeal inflammation. Pectoriloquy is a sign of the last stage of phthisis. Percussion, mensuration, and succussion, or shaking the body, assist us in our diagnosis of chest diseases. During healthy respiration in adults, inspiration and expiration succeed each other with regularity. There are from fifteen to twenty respirations in a minute, but more in women, weak individuals, and children. Respiration is affected by the intercostal and other inspiratory muscles in health, and is called thoracic, or by the diaphragm alone, as in fevers, and near the approach of death, when it is called abdominal. Respiration undergoes the same alterations as the pulse. It may be frequent (*respiratio frequens*) when it exceeds the natural number, or rare (*r. rara*) when it is slower. It is frequent in all febrile diseases, in verminous affections, as well as in pulmonary diseases. It is rare in comatose and hysterical diseases, and in the last moments of life. It is quick (*r. celer.*) and slow (*r. tarda*). It is quick when the inspiration is short, rapid, and abrupt; slow when long and gradual. Quick is united with frequent respiration, and is then called accelerated; and this may become panting. Quick may be combined with rare, and slow depends on the same cause as rare.

When the inspirations and expirations follow each other at equal intervals, respiration is said to be regular; when these intervals are prolonged, it is called irregular; intermittent, when one or more inspirations supervene, late or not at all; interrupted when expiration takes place before inspiration is finished. These modifications occur in thoracic and abdominal inflammations, and particularly in nervous affections. Respiration is great when the

inspirations and expirations are perfect: it is small when dilatation is scarcely sensible. The respiration is frequent, quick, and small, though the chest is completely expanded, as in peripneumonia, and this is called high respiration. The large and rare respiration constitutes the sublime; it is usual in cerebral fevers, and on the approach of phrenitic delirium. The smallness of respiration is indicative of thoracic affection.

Respiration is equal, when the inspirations, whether quick or slow, are followed by similar expirations; unequal when one of these motions is longer than the other. This kind of breathing occurs in adynamic fevers, asthma, and spasmodic disorders. In pleuritis the inspiration is quick; the expiration, though short, appears long: the reverse is seen in pneumonia.

The respiration is easy when the expiratory muscles act properly; it is difficult when the large accessory muscles are called into action, or when the proper inspiratory muscles contract with violence, or as if convulsively. The *scaleni* muscles project on the neck; the *intercostals* are similarly affected: this form of breathing may be difficult or laborious or suffocating. *Orthopnœa* is a species of suffocating respiration, which requires the erect position, as in asthma. The breathing is difficult in thoracic and abdominal diseases, in every case in which the entrance of the air into the lungs is prevented, or when the thorax cannot dilate, either in consequence of effusion into the cavity of the pleura, or by external pressure on the chest.

The respiration is complete when both lungs act simultaneously: it is characterised by inequality of force and extent in the thoracic movements; it is incomplete when one side moves less than the other, or is wholly immoveable; it is diagnostic of chest complaints, and of pleurisy and pneumonia in infants. It is, however, seen in health, but has been produced by strong adhesions. Pneumonia, effusion, or pleurodynia will cause it.

Abdominal respiration is characterised by elevation of the abdomen during inspiration, and sinking during expiration; the ribs execute no movement. It is in general a sign of death, but is the natural respiration of old persons, the cartilages of whose ribs are ossified, and resist the action of the muscles enfeebled by age.

Thoracic respiration is effected by the elevation of the ribs without the aid of the diaphragm, and is observed in abdominal inflammations, when the abdomen is distended by morbid fluids, (dropsy,) or solids, (tumours, as enlarged ovaries,) or the gravid uterus. When the neck is short and thick, there is a predisposition to apoplexy or other cerebral disease; when long and slender, the shoulders high, and chest narrow on the sides, and prominent in front, there is an indication of phthisis, or some other thoracic disease, and in infants of rachitism. When the jugular veins are congested, there is obstruction to the passage of the blood in the lungs, arising from disease of the heart, or large vessels, or lungs.

The examination of the external surface of the chest by mensuration, percussion, succussion, or auscultation, enables us to detect malformations, tumours, hydrothorax, pneumothorax, &c., and various other maladies in different parts of the body, as will appear by the following description of these means of diagnosis.*

Stethoscopic and Morbid Signs furnished by the Respiration.—When the stethoscope is applied to the chest of a healthy adult, a murmuring sound is heard during each respiration, which is caused by the expansion of the air-cells, and is termed *Respiratory Murmur*. This becomes louder when a greater quantity of air than usual is taken in during inspiration, and is then called *Puerile*, as it exists in children. This is sometimes constitutional with nervous and hysterical persons; and it occurs when a part of one or both lungs is impervious in the healthy part, or in one lung when the functions of the other are annihilated, as in empyema, hydrothorax. The respiratory murmur becomes weak or extinct when the air-tubes in a part are obstructed or constricted by spasm, as in catarrh, asthma, &c. or when any substance, solid, fluid, or gaseous, is interposed between the lung and the chest, or when the lung is hepatized or solidified.

Bronchial respiration is caused by the air passing through the bronchial tubes without entering the minute air-cells, when these are compressed, condensed, or solidified, as in hepatization.

Cavernous respiration is induced by the passage of the air from the bronchi into large cavities, instead of entering the minute air-cells.

The *crepitous râle* is compared to the crackling or crepitation of salt on live coals, or in a heated vessel, and is caused by the air passing through a fluid in the minute air-cells.

The *mucous râle* is compared to the sound caused by blowing through a pipe into soapy water, and is induced by the passage of the air through a fluid in the bronchial tubes or accidental cavities.

The *sonorous râle* is compared to the sound of cooing or snoring, and is caused by the air passing through the bronchial tubes, whose lining membrane is thickened and rough.

The *sibilous râle* is compared to the sound caused by the sudden separation of two oiled surfaces, and is ascribed to the same condition of mucous membrane in the smaller bronchi as the last.

Respiratory murmur, feeble or extinct, indicates pleuritis, empyema, hydrothorax, pneumonia, oedema, phthisis, vomica, pulmonary apoplexy, emphysema, pneumothorax and catarrh.

* For a full account of the structure of the lungs and auscultation, see papers in the *London Medical and Surgical Journal*, 1836, and in my forthcoming *Manual of Auscultation and Percussion*, to which reference has been made already.

Bronchial respiration is present in the second stage of pneumonia, first stage of phthisis, and dilated bronchi.

Cavernous respiration is present in tuberculous abscess, pneumonic abscess, and dilated bronchi.

The *crepitous râle* indicates the first stage of pneumonia, œdema, pulmonary apoplexy, and emphysema.

The *mucons râle* is discovered in bronchitis, tuberculous, pneumonic and gangrenous abscesses, and also in bronchial hæmorrhage.

The *sonorous and sibilous râles* are characteristic of bronchitis and emphysema.

Signs furnished by the Voice.—The sound of the voice is scarcely discoverable by the stethoscope in the bronchi of a healthy lung, except under the clavicles and along the spine. The principal modifications of the voice during disease are *bruncho-phony*, *pectoriloquy*, and *œgophony*.

Bruncho-phony is heard when the lung is solidified, as in hepatisation.

Pectoriloquy is said to exist when the voice is distinctly heard through the stethoscope applied to the chest, and arises from the reverberation of the voice in a cavity in the parenchyma of the lung communicating with the bronchi.

œgophony is compared to the echo of the voice, and is present in pleurisy.

Bruncho-phony indicates the second stage of pneumonia, the first stage of phthisis, and dilated bronchi.

Pectoriloquy is heard in tuberculous, pneumonic, and gangrenous abscesses, and dilated bronchi.

œgophony is characteristic of pleuritis.

Signs furnished by Percussion.—The sound elicited by percussing or striking the chest is either *clear*, *tympanitic* or *dull*.

It is *clear* over all the chest except the regions of the heart and liver, where it is dull, and over the stomach, where it is tympanitic.

It is *tympanitic* when the lung is rarefied, or when air is placed between this organ and the chest, as in emphysema and pneumothorax.

It is *dull* when the substance of the lung is infiltrated or solidified, and when there is a substance interposed between the lung and the chest, as in pleuritis, empyema, hydrothorax, pneumonia, œdema, pulmonary apoplexy, vomice, phthisis, and accidental productions of the pleura. Other signs are afforded by the voice and articulation: we observe the patient stammer on the invasion of apoplexy; the voice fail on the approach of death; and in other cases trembling, interrupted, or taciturn; while loquacity combined with delirium, and the entire loss of speech, always manifests violent internal inflammation or compression of the brain.

Obstetric Auscultation.—Bruit placentaire—Placental murmur. M. Mayor of Geneva was the first who heard the double beatings of the fœtal heart, and M. Jumeau de Kergaradec arrived at a more comprehensive conclusion. He distinguished two bruits at the fourth month and a half of pregnancy.

1. *Bruit simple avec souffle ou bruit placentaire*—a bellows sound or placental murmur.

2. *Battement double du cœur du fœtus*—a double beating of the heart of the fœtus.*

M. Ollivry, a physician at Quimper, wrote to Laennec, that in four cases the bruit ceased on the section of the umbilical cord, and he thought that it corresponded exactly with the insertion of the placenta.

Dr. Ferguson, of Dublin, considered the placental bruit unequivocal evidence of pregnancy, (*Dublin Med. Trans.* 1839.) and Dr. Evory, in his work on *Obstetric Auscultation*, is of the same opinion, (1834.)

M. Velpeau has employed auscultation in many cases in vain, (*Traité Élémentaire des Accouch.* Deuxième Edition, 1835); and M. Capuron attests the same conclusion, (*Traité des Accouch.* 1834.)

I have also tried auscultation in several cases of pregnancy without detecting either the placental murmur or fœtal circulation, but I have succeeded in other cases. M. Bouillaud is of opinion that the placental murmur is nothing but the intermittent bruit de soufflet of arteries, and is the effect of compression of the large blood vessels of the abdomen, such as the hypogastric and external iliac arteries by gravid uterus.

Laennec denied the accuracy of this conclusion, and stated that, if true, we ought to hear the bruit on both sides of the uterus, either at the same time or alternately, and that it might be displaced at will by varying the position of the patient. M. Bouillaud replied that he had heard the bruit alternately in the right and left side, by varying the position of his patient. He also heard it in a case in which a tumour compressed the great vessels of the abdomen, which was mistaken for pregnancy.

But the double pulsation of the fœtal heart, when the ear or stethoscope is applied to the abdomen of the woman, after the pregnancy has advanced beyond half the usual term, is a positive proof of utero-gestation.

The double bruits of the fœtus will be heard in different parts of the abdomen according as the position of the woman is varied; and the pulsations of the fœtus will be from 140 to 160 or 170 in a minute, and therefore totally different from the maternal pulse. Whenever the fœtal pulsations are heard the infant is living, whether

* Mémoire sur l'auscultation appliquée à l'étude de la grossesse, par M. Jumeau de Kergaradec, 1822.

the mother feels its movements or not. This is a most important fact in practical obstetrics.

After what has been already stated, the inference is clear that the placental bruit de soufflet cannot be depended upon as a tocologic diagnostic.

The double sound of the fetal heart may be compared to the tic-tac of a watch placed under a pillow on which the head rests. The intensity of the noise will be proportional to the advanced age of the fetus. It will be heard in different points of the abdomen according to the position of the woman, at the most dependent part of the uterus in which the fetus will be placed, from its gravity.

Succussion, or shaking of the trunk, enables us to detect fluid in the chest, when this cavity is partly filled with air and partly with fluid, as in pleuro-pneumo-thorax.

The stethoscope also enables us to detect deep-seated fractures; or urinary calculus, if the instrument is applied to the sacrum or pubes, we hear a loud and distinct sound when the catheter comes in contact with the stone: hernia, when the bowel passes through the diaphragm into the chest, we can hear borborygmi distinctly, a fact that enables us to distinguish intestinal from omental hernia: tympanitis, by applying the stethoscope, and using gentle percussion, a sound is heard like that of a drum at a distance: ascites, by the sense of fluctuation being distinctly heard by slight percussion on the opposite side of the abdomen: hydrocele may be detected in the same manner, and distinguished from diseased testis; and, lastly, we can discover the existence of the fetus in utero by hearing the *bruit de soufflet* in the placenta, or the rapid motion of the fetal heart; and also abscesses of the liver and diseases of the ear.

Stethoscopic Signs in Fractures.—Crepitation louder in oblique than in transverse; a gurgling noise when effusion exists; sound of many splinters in comminuted fractures, and heard when the cylinder is applied to any bone articulated with the broken one; fracture of the femur even heard upon the cranium, (Laennec.) Obsecure fractures may in general be detected by the stethoscope.

In *Diseases of the Ear* the application of the stethoscope on the mastoid process, or on other cavities of the face, will render the circulation of the air in these cavities audible; and the voice will also be heard to resound through them. This resonance is called *rhinophony*. When one nostril is closed by a finger, and the person blows through the other, the ingress of air into the tympanum will be very evident on applying the stethoscope to the opposite mastoid process. When mucus is in the Eustachian tube or ear, as in coryza, the mucous rhonchus will be heard. Lastly, auscultation will be of great value in veterinary surgery.

Two other means for detecting diseases of the chest are employed—Percussion and Mensuration, or Admeasurement; the value of which must be obvious to every member of the faculty.

Percussion is still a very valuable means of distinguishing dis-

eases. In performing this operation, the fingers are flexed, and their extremities brought together, when they strike the chest perpendicularly, its integuments having been rendered tense by the other hand. The percussion should be made alternately on the corresponding points of the chest. The patient should be erect or sitting, his arms being carried backwards when the anterior part of the chest is examined, elevated towards his head when we explore the sides, and brought across the anterior part of the chest when we percuss the back. The sound will be clear when any part of the chest is struck, which is merely covered by skin. It will be dull over the mammae in females, the pectoral muscles in the male, and over the heart and liver. It is dull, obscure, or absent, in disease, though sometimes unnaturally clear under the clavicles. The sound is increased when the lungs contain much air, as in pneumothorax. It is dull and obscure in catarrh, œdema of the lungs, and the first stage of pneumonia. It is altogether suppressed in the second stage of pneumonia, when a part of the lung is hepatized and impermeable to air. This happens when the pleura is filled with fluid, or any morbid growth. In abscess of the lung, the sound is increased, and may resemble metallic tinkling.

Percussion or palpation is an efficacious mode of ascertaining the existence of abdominal diseases, and is effected by placing a flat piece of ivory, called plessimètre by its inventor, M. Piorry of Paris, which is attached to the stethoscope. Percussion may be immediate or mediate; this kind is termed abdomenoscopy. It enables us to detect the size and dimensions of the liver, gall-bladder, spleen, kidneys, gravid uterus, and bladder. The sound will vary according to the quantity of gas in the intestines, according to the disease and the position of the patient: immediate percussion is now preferred to mediate, it is used in detecting dropsies and abscesses.

Mediate percussion is now preferred; and this is effected by means of a small piece of ivory, wood, or India rubber, and latterly with the fingers.

It is now the general opinion that the finger composed of bone and soft integuments unites the advantages of all the proposed instruments, but the plessimètre is often a useful adjunct.

When it is necessary to percuss the thorax of a thin person, the finger will be more easily applied to the intercostal space; and it is preferable in examining the summit of the lungs above the clavicles. In all other cases the ivory plessimètre is to be preferred, and especially in examining the abdomen, as the soft parts of the finger would still further absorb the sound of the subjacent organs, already dulled by the thickness of the abdominal parietes.

The ivory plessimètre is to be held between the forefinger and thumb of the left hand with sufficient force to prevent its slipping or oscillating, and then applied to the part proposed to be examined.

The application should be made with great precision, and it is necessary to place the plessimètre in close contact with the part

about to be examined. If a vacuum existed under the instrument, percussion would give a sound analogous to that of a cavern in the lung.

A thin layer of linen, as the innergarment, may be placed under the plessimètre, as this has scarcely any effect upon the sound produced by percussion. But the instrument should never be placed on a knitted or silk covering, or thick flannel or leather waistcoat, all of which obscure the sound and produce the same inconvenience as when the plessimètre is inexactly applied. Percussion is made with the fore and middle fingers of the right hand united. The thumb is bent upon the forefinger, and the latter pressed against the middle finger. The extremities of the two fingers should be on a level, and the nails should not project. The plessimètre is to be percussed with the pulpy extremities of the fingers but not with the nails. The shock should be rapid to produce sonorous vibrations. All the precautions as to the use of the plessimètre are to be observed when employing the fingers for the same purpose, as this instrument. When using the fingers instead of the plessimètre we should always strike on the same phalanges, and the percussing finger ought to be always at the same angle with the percussed. This last precept equally applies to the plessimètre.

In general the percussion is made on the second phalanx of the fore or middle finger of the left hand. Percussion is always to be made as uniformly as possible, and principally in comparative examinations. It must be executed with greater or less force, according to the thickness of the parietes of the regions examined and the embonpoint and strength of the patients.

Different sounds are afforded by percussing different regions of the body, and these have been classed as follows by M. Piorry:—1. femoral, 2. jecoral (hepatic), 3. cardial (cardic), 4. pulmonal, 5. intestinal, 6. stomacal, 7. osteal, 8. humoric, as in organs filled with liquid or air,* 9. hydatid, as in hydatid tumours, and 10. bruit de pot fêlé, slightly cracked sound, as in caverns filled with air and having a narrow outlet.

The first six differences of sound belong to two principal classes. These sounds are, *son mat*, *dull*, and *son clair*, *clear sound*, which differ in degree. The loudest sound is afforded by the hollow, and the dullest by the solid organs.

When the sound is clear in any region it indicates the presence of air, and the resonance will be in proportion to the quantity of the elastic fluid. Hence the lungs which contain air yield a clear sound, as will the stomach and intestines when partially or completely distended or inflated with gas.

All solid organs, on the contrary, afford a dull sound in proportion to their density and consistence. Thus the heart will yield a

* This sound has been subsequently designated hydro-pneumatic, and it may exist in a normal condition.

dull sound, but less so than the liver, and the thigh will give one much more dull than either organ.

Again, if we percuss a liver in a normal state and another which is scirrhus, the dull sound in both cases will be accompanied with greater resistance in the latter case.

The limits of this manual prevent me from giving a complete account of percussion, but it will be found in the original essays and work to which I have before alluded.

Mensuration of the Chest and Abdomen is a valuable means of diagnosis. A tape is applied to the dorsal vertebrae, and passed to the sternum on one side and then on the other. The sides of the chest seldom correspond in dimensions, and if the person examined has pleurisy of one side, then the capacity may be diminished, while that of the opposite will, in general, be found enlarged; one side of the chest may be dilated when it contains fluid, gaseous secretions, or large tumours. It may be contracted by original conformation. The abdomen is measured during the treatment of ascites, abdominal, uterine, or ovarian tumours.

Succussion or Shaking the Chest will enable us to detect the presence of fluid in that cavity, unless the whole cavity is completely filled. This is a valuable diagnostic in hydrothorax, empyema, and hæmatorax and abdominal dropsies.

Signs or Morbid Indications taken from the digestive System.—Pain in *mastication* may arise from tooth-ache, inflamed gums, tongue, sore-throat, as in scarlatina, cynanche, aphthæ, cancer of the tongue, cheeks, or fauces, and from neuralgia or rheumatism.

Blackness of the lips, teeth, gums, and tongue, with tremors and fissures of the last, are indicative of dangerous internal inflammations, as those of the intestines, peritoneum; or of typhus. These appearances justify a fatal prognosis. The term *sordes* is applied to the matter on the lips, teeth, &c.

A whitish, yellowish, greyish, or blackish tongue, with its edges red, accompanied by loss of taste and appetite, denote an irritation more or less intense in the stomach. When florid, or when the papillæ project through the fur, according to some there is gastro-mucous enteritis, and according to others, gastro-serous enteritis. In disease of the liver, the tongue is coated with a yellow fur. In disorders of the brain, such as nervous and tremulous delirium, there is a milky fluid or fur on the organ. When the tongue is dry in fever, generally, *but not invariably*, it contra-indicates venesection, opium, and wine. When the organ is dry, unattended by thirst, it is a bad sign in febrile diseases: this condition is often produced in health, by sleeping with the mouth open, and frequently occurs to snuff-takers, especially when intemperate. When the centre of the organ becomes brown and dry, typhus is denoted.

Increase of Appetite is a sign of pregnancy, of diabetes, or of worms in the intestines.

Defect of Appetite, distaste of aliments, difficult digestion, and

continued vomiting, indicate pregnancy, gastritis, or cancer of the stomach.

Insatiable Thirst is characteristic of fevers and acute diseases, and absolute want of this sensation may occur in hydrophobia and gastritis.

Difficult Deglutition is a sign of inflammation or ulceration of the throat, of spasm, ulceration, stricture, or imperviousness of the œsophagus, of chorea, hysteria, tetanus, hydrophobia; and, when fluid gurgles in the throat, is a sign of approaching death. When it is preceded by gnashing of the teeth, and inability to move the tongue, it indicates disease of the brain. Pain or tenderness on pressing the epigastrium is a sign of gastric irritation or inflammation.

Constipation or Confinement of the Bowels arises from disorder or disease of the stomach, liver, and other digestive organs; and also from intestinal stricture, intussusception, and hernia.

Diarrhœa arises from irritation or inflammation of the intestines induced by improper food, exposure to cold, repression of eruptions, dentition, or by local injuries.

Appearance of the Fæces.—The fæces may be pale or white from a deficiency of bile, very yellow from an excess of the same fluid, black in some diseases, probably from ulceration, or from the use of preparations of iron or sulphur, or from mere retention in the colon, and in such cases probably by the formation of sulphuretted gas; bloody, from ulceration and contra-indicating the use of cathartics; green, from large doses of calomel; like curdled cream from castor oil, and like rice water or thin gruel in malignant cholera. The odour is offensive in ulceration of the bowels, in the last stage of fever, dysentery, infantile remittent fever, diarrhœa, and sometimes in cholera. The fæces may be reduced to small hardened masses or *scybala*, which shows their long retention in the cells of the colon; or they may be flattened or passed in diminished size, as in prostatic disease, or in stricture of the rectum, and piles.

Flatulence or gas may be secreted in the bowels, as in dyspepsia, tympanites, or in the last stage of typhus, when it is called *borborygmi*, from the peculiar sound, and also *meteorization*, or meteorism. It is common to sensitive women during pregnancy and after delivery.

Nausea or vomiting may depend on disorder of the digestive organs, of the brain, chest, and skin, or any part of the body. In children there is acidity of the alvine evacuations, itching of the extremities of the gastro-intestinal mucous membrane, as at the mouth, lips, nose, and anus, and also of the genito-urinary organs, and eye. This is exemplified in cases of intestinal worms, infantile remittent fever, catarrh, coryza, &c. Tension of the abdomen may be produced by flatus, ascites, enlargement of mesenteric glands, liver, and various other morbid growths, diseased ovaria, or uterus, preg-

nancy, accumulation of feces, large aneurisms, incurvation of the spine, and tubercular, fungoid, or scirrhus enlargement.

Abdomenoscöpy, or exploration of the abdomen, enables us to detect these various diseases, and this is effected by *inspection*, *manual examination*, and by *percussion*, as already described.

Signs or Morbid Indications taken from Secretions.—Organs which afford secretions lose their power for some time when inflamed, as we see exemplified in incipient inflammation of the eye, nose, kidney, &c. To this state succeeds a copious secretion or effusion of fluid, there will be lachrymation, mucous discharge from the nose, and increased quantity of urine.

Suppression of urine, if complete, is generally a fatal symptom, especially in the advanced period of fever and in other diseases, and death seems to be induced by apoplexy. Complete suppression has continued for seven weeks, and recovery happened. In fatal cases of fever, there may be no urine in the bladder.

Retention of urine may be caused in disorders of the nervous system, as hysteria, hypochondriasis, &c. This often happens in the last stage of typhus, and the bladder has distended the abdomen so much, that pregnancy was suspected.

Distended bladder is also caused by retroversion of the gravid uterus: the fundus of this organ being depressed into the sacrum. The urine may be deficient in febrile diseases, and especially in dropsy. The average quantity passed daily by healthy individuals is about two pints and a half. This fluid may be voided in excess in diabetes, to the amount of forty pints, and on the approach of inebriation, in hysteria, and by fear. The latter is well exemplified at the College of Surgeons and Apothecaries Hall, in the part of each mansion, significantly designated "the Finking-room." It is well known to those who have visited this chamber that a certain chamber utensil is very often called into use. Children under the influence of fear have an involuntary evacuation of urine and feces. The colour of the urine is often diagnostic of disease. In inflammatory fever, it is high coloured; in typhus and hysteria, dropsy and diabetes, it is pale; in obstinate dyspepsia, it deposits a pink or lateritious or white sediment; in disease of the liver, it is red, resembling port wine or porter; in jaundice, it is yellow, and tinges linen of a saffron hue; and in cases of intestinal worms it is often white and milky, as also in certain diseases of the bladder. Excessive doses of the alkaline medicines will produce the same colour. When the urine deposits, after standing for some time, a sediment of a pink colour or resembling brickdust, there is lithic acid present. We observe this in derangements of the digestive organs, in liver complaints, in gout, rheumatism, inflammatory and febrile diseases. If we test the urine in such cases with litmus paper, we shall observe the colour changed to red; when the alkaline salts predominate, the colour of the paper becomes brown. The urine may be mixed with blood: the latter proceeds from the urethra, bladder, ureter,

or kidney, and usually accompanies calculus, fungus, or ulceration in some of these organs. The urine may be mixed with mucus, as in catarrhus vesicæ of old people; and it contains albumen in certain forms of dropsy, which is easily detected by heat.

Dysury indicates stricture of the urethra, calculus in the bladder, disease of the prostate gland, disease of the rectum, bladder, vagina, or uterus. It may arise from spasm of the urethra or bladder, and depend upon irritation induced sympathetically by remote or contiguous organs. It may depend on disease in the brain, and what are called anomalous affections. It has supervened during the convalescence after scarlatina, and defied numerous remedies for some days.

Signs or Morbid Indications deduced from Nutrition.—Excessive obesity, combined with difficulty in locomotion, indicates repletion, and proves that the energy of the whole organs has been great; while excessive emaciation is a positive proof of the existence of some chronic disease, as phthisis, tabes mesenterica, &c.

Signs taken from the Temperature of the Body.—In all inflammations there is an increase of temperature in the affected part. This can be ascertained by the touch, but most accurately by a thermometer. In inflammations of important organs, or in continued fevers, the skin, and especially that over the forehead and face, has its temperature increased.

Coldness of the body, rigors, or cold shivering, indicate incipient fever, inflammation, or suppuration. If the coldness comes on suddenly and occupies the extremities and the trunk, it indicates approaching death.

Diagnosis deduced from the Difference of Ages.—Inflammations of the brain are most dangerous to infants and to old persons, in consequence of the determination of blood to this organ at both periods of life. Diseases of the chest are most common to adolescents and adults, and to those in advanced life; and inflammations and irritations of the digestive organs are most common in the middle periods of life. These are also very common to infants and children from improper food. Inflammations terminate in children by eruptions on the head or face, or by epistaxis; in adolescents, by hæmoptysis; in adults, by bilious vomiting or diarrhœa; in old people, by mucous discharge from the bladder, or by infiltration of the extremities.

Diagnosis from Temperaments and Constitutions.—Internal inflammations are most dangerous to persons of a sanguine temperament, and of high complexion.

The diseases of the brain and its appendages are most dangerous to persons of the nervous temperament.

Inflammations of the digestive and other abdominal organs are most formidable to those of the bilious temperament. Scrofula, scurvy, and all diseases of debility, are most dangerous to those of the lymphatic temperament.

Idiosyncrasies, or peculiar dispositions of individuals to disease, often obscure our diagnosis, prognosis, and treatment. A correct diagnosis is the most important part of pathology; for without knowing the nature of the disease, the treatment cannot be determined. The first question to be determined, in all cases, is, what is the organ affected, and is the disease functional or structural, or a complication of both. In learning the history of every case, we are in general enabled to determine the organ affected, and whether the disease is functional, structural, or complicated. It is of the utmost importance to form a correct opinion, as the treatment necessary for functional and structural diseases is diametrically opposite, and if erroneously employed must be productive of great injury, and even fatal consequences. In every case we should pursue the following plan in taking the history of the disease. We should consider the age, sex, residence, occupation, habit of body, temperament, state of general health, previous history, and present symptoms. We should next examine the functions of the nervous, circulatory, respiratory, digestive and genito-urinary systems. We should examine the countenance, eyes, tongue, respiration, pulse, condition of the appetite, regularity of the alvine evacuations, condition and colour of the feces, condition of the urine, and uterine secretion in the other sex, and muscular system. We then can form a correct opinion of the nature of the disease, of the general issue, and treatment.

NOSOLOGY, OR CLASSIFICATION OF DISEASES.

Various classifications of diseases have been proposed by writers, but all are liable to objection. Dr. Cullen's is adopted in this work as one of the best. For practical purposes we may divide diseases or deviations from health into, 1, functional; 2, structural; 3, mechanical; and 4, parasitical. Diseases may be complicated with each other, and comprehend every form of human infirmity. They are divided into their origin, the moment of invasion, progress, type, simplicity or complication: their characters are modified by the seasons.

With regard to their *origin*, diseases are divided into *hereditary*, or those transmitted with life at the moment of conception; *innate*, or those contracted in the uterus after conception; *acquired*, or those contracted after birth. Acquired diseases are divided into *sporadic*, or those which accidentally affect individuals; and *pandemic*, or those resulting from causes that affect a great number of persons at the same time: the last are subdivided into *endemic* and *epidemic*, according as they depend upon permanent, or local and transient causes. All these may be contagious or noncontagious: the first are communicable from one person to another by mediate or immediate contact; the latter communicable through atmosphere, and are designated infectious. With regard to their

invasion, diseases are divided into *primitive* and *consecutive*;—they are *external* or *internal*, *local* or *general*, when affecting many organs at the same time; *idiopathic*, when they continue in the part first affected; *symptomatic*, when dependent on another malady; *sympathetic*, when deranging organs more or less distant; and *critical*, when terminating in health, another disease, or death. A disease is *simple* when it exists alone, *compound* when accompanied by another disease which requires no particular treatment, and *complicated* when combined with one or more diseases which require a different treatment.

GENERAL THERAPEUTICS.

TREATMENT OF DISEASES IN GENERAL.

Three grand powers are employed to prevent and treat diseases; Hygiology, Pharmacy, and Surgery. The curative means are divided into *preservative*, *palliative*, and *radical*.

Hygiology means the regimen of the sick; pharmacy, the preparation of medicinal agents; and surgery comprehends all manual applications to the body. These three means are comprehended in the term Therapeutics.

Hygiology is the most important branch of medicine: it directs us to employ all the means conducive to health, as aliment, exercise, medicines, &c. A proper regimen is of the first importance in the treatment of diseases; it often decides a favourable or unfavourable termination. Tranquillity of mind, repose of the body, refreshing sleep, bland and easily digested aliments, abstinence from ardent and fermented liquors, regularity of the bowels, skin, and of the different functions, are, in a vast majority of diseases, infinitely more powerful than medicines. The latter, however, are of immense value, and are bounteously afforded from almost every region of the creation, the air, the earth, and the ocean, and are so diversified as to affect and control the functions and diseases of every part of the body.

Therapeutic agents have been classed, and the classifications are as numerous as there are writers on the subject. M. Barbier, whose arrangement is one of the best, divides medicines into tonics, excitants, diffusibles, emollients, temperants, narcotics, purgatives, emetics, laxatives; and to those whose operation is unknown, he applies the term *incertæ sedis*.

Medicines are also divided according to their actions upon certain organs, as sternutatories, sialagogues, emetics, purgatives, stonmachics, diuretics, emmenagogues, aphrodisiacs, anti-aphrodisiacs, expectorants, sudorifics, anti-emetics, anti-herpetic, anti-psorics, anti-scorbutics, anti-scurfulous, anti-syphilitic, carminatives, vermifuge, febrifuge, antispasmodic, &c.

The surgical means are repercussives, resolvents, emollients, narcotics, rubefacients, vesicants, escharotics, maturatives, or suppara-

tives, deterrents: operations, capital and minor; the first comprising the application of ligatures to arteries and veins, amputation, excision, extirpation, laryngotomy, tracheotomy, œsophagotomy, gastrotomy, catheterism, lithotomy, lithotrity, paracentesis, or tapping the abdomen, chest, tunica vaginalis, ovary, or brain, excision for fistulæ, herniæ, suture, coaptation of fractures, and reduction of dislocations. The second or minor operations, are extraction of teeth, blood-letting, leeching, cupping, insertion of setons or issues, application of moxa, blisters, cauteries, vaccination, and perforation of the lobe of the ear.

Materia Medica is that branch of medical science which relates to medicines. Medicines are abundantly supplied from the three great kingdoms of nature, the vegetable, the mineral, and the animal. The science which treats of these kingdoms is natural history, which is subdivided into botany, mineralogy, and zoology. Natural history, though a vast science, is but a division of natural philosophy, which includes the knowledge of all existent beings which are capable of affecting our senses, and embraces, 1. physics, or the general laws which govern and maintain the order and harmony of all bodies collectively; 2. chemistry, which explains the elements and proximate principles of bodies, and their action on each other; 3. anatomy and physiology, which explain the structure and functions of all living beings; and 4. astronomy, or the study of the immense bodies placed above the earth and the atmosphere.

It may be stated, that the earth and its innumerable productions, those on its surface and in its substance, the ocean, the atmosphere, and the innumerable objects these contain, contribute largely to our therapeutical agents, or to the *materia medica*. The *materia medica* is supplied from every range of the creation, and extends from matter to space. The objects which engage the attention of the therapist are, the properties of the sun, moon, and heavenly bodies, the laws of their uninterrupted revolutions, and various movements; their influence on climate, situation, and human health; the various productions of the earth and the waters, and the microcosm of the human body, with its wonderful organs, functions, immaterial principle, innumerable derangements, and remedies. Though there are "a thousand species of diseases, there are a thousand species of remedies." The last are derived from the organic and inorganic kingdoms of nature, but by far the greatest number are of vegetable origin—few of animal or mineral.

The distribution of all bodies into three kingdoms very much facilitates the study of nature, and more especially as the productions of each kingdom have been subdivided into classes, orders, genera, species, and varieties. "A medicine," says Galen, "is that which can alter our nature, and from a preternatural, reduce it to a natural condition." All medicines are derived from the ultimate principles and elements of vegetables, animals, and minerals. They are procured from the woods, barks, leaves, flowers,

seeds, fruits, gums, resins, and juices of vegetables, from different parts of animals, and from earths, metals, and minerals; and all are subjected to various modes of preparation by the apothecary; such as oils, distilled waters, infusions, decoctions, extracts, mixtures, spirits, tinctures, wines, vinegars, syrups, confections, powders, pills, plasters, cerates, ointments, liniments, and cataplasms. The physical properties of medicines will not always enable us to judge of their action, though in many instances, especially in the vegetable kingdom, the colour, odour, and taste, will furnish us with a correct idea of their effects. The last position may be illustrated by a few examples. It is well known that plants whose flowers are *white* seldom possess active properties; those whose colour is *yellow* are generally endowed with active principles, as the bitter, such as gentian, calumba, gamboge, colocynth, &c.; those of a *red* colour are acid and astringent, such as red roses, rhatany, strawberry roots, &c.; those of a *brown* colour are astringent and tonic, such as cinchona, catechu, kino, &c.; those of a *green* colour are sharp and acid; those of a *blue* are alkaline, but if this tint is deep or glaucous, the plants are often poisonous, though there are exceptions, as in the black grape and plum. The *black* colour of plants or flowers indicates a highly poisonous property, as exemplified by belladonna, hyoseyamus, &c. There are numerous exceptions, however, to the indications afforded by the colour of plants alone. Neither can the sense of taste be depended upon, though it often affords indications of the properties of remedies. The *salt* taste is common to vegetables which grow on the sea-shore, and contain a large portion of saline ingredients. The *acid* taste is peculiar to many medicines, vegetable, mineral, and animal, the mineral acids being the most powerful. The *caustic* taste is also common to various productions of the three great kingdoms of nature, as acids, alkalies, lytta, &c. The *acrid* taste is peculiar to many remedies, and also the *astringent* or *styptic*, as alum, salts of copper, iron, &c. The *bitter* taste indicates tonic, though there are exceptions, as aloes, colocynth, and nux vomica. The *hot* taste distinguishes aromatics and spices, and indicates the existence of essential oil. The *nauseous* taste belongs to poisonous remedies, though sometimes to purgatives. The *mucilaginous* taste characterises nutritious substances, and indicates the presence of fecula and albumen. The *saccharine* taste belongs to many substances, as vegetable, mineral, and animal.

The sense of smell is also employed in discovering the properties of medicines. The *aromatic* odour is peculiar to species which contain essential or volatile oils, but capsicum is an exception. The *fœtid* odour characterises antispasmodics; the *virose* odour indicates poisons. There is an important fact with respect to odours which deserves recollection, which is, when certain medicines have lost their peculiar odour, they become inert and useless.

The botanical characters of plants indicate their therapeutical properties, as in general those of the same family possess a similar

mode of action on the animal economy. It may be mentioned that the cruciferae contain an acrid volatile oil, which is useful in scorbutic and atonic diseases; the labiatae possess an aromatic essential oil and extractive principle; the solanaceae are narcotic; the euphorbiaceae are acrid and purgative; the umbellatae and cruciferae are distinguished by peculiar properties; the rubiaceae are generally tonic, though some are emetic, as *ipecaeuana*.

All substances in the *materia medica*, and indeed in nature, are either simple or compound; the simple are homogeneous, the compound heterogeneous, and composed of several elements.

Chemistry has enabled us to detect fifty simple substances; viz. oxygen, hydrogen, boron, carbon, phosphorus, sulphur, selenium, iodine, chlorine, nitrogen, and forty metals, which are arranged under classes according to their affinity for oxygen. Ten of these substances are employed in medicine, and all may be changed in the human body, or enter into new combinations before they can act on the economy. Compound substances are divided into two great classes, organic and inorganic; the former embraces the animal and vegetable, and the latter the mineral medicines. Simple substances, when combined, form inorganic compounds; while organic substances contain but a few elementary principles. In proof of this point, it may be observed that nearly all vegetables are composed of oxygen, hydrogen, and carbon; while most animal substances contain these with nitrogen, and even small portions of iron, sulphur, phosphorus, &c. These are designated elementary and proximate principles. The compound substances employed in medicine are the acids, metallic oxides, sulphurets, chlorides, and salts. The proximate principles of vegetable and animal substances are acid, alkaline, or neutral.

Medicines are combined to obtain various objects or ends: 1. to increase the action of the principal substance; 2. to lessen the action of a remedy when too violent or irritating, and to avoid certain effects, which would defeat the objects we have in view; 3. to obtain at the same time the effects of two or more remedies; 4. to form a compound, which will possess different effects from those of any of the ingredients.

As a general rule, we avoid prescribing medicines which decompose or neutralise each other, though there are many exceptions to this rule; for example, the combination of acetate of lead with opium, of hydrocyanic acid with neutral salts, of iodine with bitter infusions, are all unchemical, but their medicinal effects are most valuable.

Medicines are prepared for use in the pharmaceutical laboratory, and are kept in certain forms called official preparations, as prescribed by the directions of the Colleges of Physicians in their *Pharmacopœia*. Physicians may, however, employ other combinations in their prescriptions, and these are called extemporaneous, or magistral preparations. There are certain abbreviations, by initial letters and marks, employed by the faculty in prescriptions, for

dispatch and convenience, which express the quantities and doses by conventional terms. These marks closely resemble each other, and often occasion fatal mistakes, as the preparation of prescriptions is in general most improperly entrusted to apprentices. The marks for a drachm and for an ounce bear a close resemblance, and when written in haste are easily mistaken. The Dublin College of Physicians command their members to write the names and quantities of medicines in full. There is another feature in the laws relating to pharmacy in Ireland of deep importance, which is, that poisons cannot be sold to persons indiscriminately applying for them. The want of such a law in this country is too well known to require further notice on this occasion. Physicians' prescriptions are written in Latin, lest patients should be alarmed, if they knew the names of many medicines ordered for them, such as arsenic, prussic acid, hemlock, nux vomica, &c.

The limits by which I am circumscribed for the execution of this work will not allow me to notice the methods of collecting, selecting, preparing, and preserving medicines, or, in other words, to describe the science and art of pharmacy; but this may be learned from any of our admirable dispensaries. It is right to mention, that the general principles upon which the collection and preparation of medicines should be made, constitute the science, and the various operations, founded on those principles, constitute the art of the apothecary.

Some of our medicines act on particular organs, as on the brain, heart, stomach, intestinal canal, &c.; and the *materia medica* is classed accordingly, as emetics, purgatives, sudorifics, &c. while others supposed medicines to have specific effects on diseases, and hence arose the terms febrifuge, anti-scorbutic, anti-scorfulous, &c. It is now generally admitted, that the only rational classification of remedies must be based upon the changes, effects, or results, which medicines produce upon the natural functions or actions of different organs. This is what is called the physiological effect of medicine. The action of remedies is either local or general.

The local action is that which occurs in the tissue to which the medicine is applied; the general action occurs when the whole organs are affected. A vast number of remedies act first through the nerves of the part, as when spirituous liquids or narcotics are taken into the stomach. The first impression is made on the nerves, which convey it to the brain, and thence it is reflected to every organ in the body. It is proved by anatomy, that every part of the body is supplied with nerves, through the cerebro-spinal system, and that all parts sympathise with each other, but in different degrees. These sympathies are great between the brain and organs of sense, as the eye, nose, tongue, ear; also between the brain and stomach, between the latter and the heart, lungs, kidneys, and generative organs. Thus it is, that increased sensibility of one organ will diminish the function in another, which strongly sympathises with it

This universal nervous connexion explains all symptoms, and regulates the effects of remedies. The anatomist who knows the proximity of the origin of the nerves of vision, smell, taste, and hearing, can readily understand the reason of sympathy between all the organs which perform these functions. Thus he explains the reason why the sight of agreeable food increases the saliva, or the sound of the culinary process for its preparation acting on the auditory nerves produces the same effects; and how the sight or smell of a disagreeable object will cause nausea or vomiting, or an unpleasant sound cause pain in the teeth, or tooth-ache cause ear-ache, or an unpleasant odour induce head-ache, and so on. It is in consequence of sympathy that neuralgia of the face or tic-doloureux will cause head-ache or want of sleep, loss of appetite, impeded respiration, and general disturbance throughout the body. Hence it is that pain or disorder of one organ will affect another at a distance, and frequently throw all parts into a deranged condition. A slight puncture of the finger may induce tetanus or universal spasm, and also derangement in every part of the body. This doctrine might be illustrated by thousands of examples. It is by this principle that nature endeavours to rid herself of morbid actions, or causes of disease; and the art of exciting and directing this principle, furnishes the most important doctrines in the practice of medicine. It is necessary to increase or diminish the intensity or force of sympathy, and to excite it when nature is overpowered by disease, and incapable of reaction. In our treatment of diseases, we direct our remedies to those organs which sympathise most with the affected part. As the digestive organs, which include all the abdominal viscera, strongly sympathise with each other, with the brain, organs of sense, respiration, and circulation, we find that by exciting the sensibility or increasing the function of the digestive tube, we direct nervous power thereto and diminish it in all other parts. Thus we exhibit purgatives in a vast number of diseases of the brain, eye, &c. and remove these diseases, though the chief effect of the remedy was on the intestines. It is by inducing counter-action, or counter-irritation in healthy organs, that we relieve or remove diseases in remote though sympathising parts.

The splendid physiological discoveries of Sir Charles Bell have elucidated the functions of the nervous system, and confirmed the doctrine of sympathy, which was in some measure obscure before the publication of his opinions.

All our remedial measures may be divided into two great classes: 1. those that diminish nervous power or sensibility, which enables organs to perform their functions, and these are called sedatives or depressants; 2. those which increase nervous power, sensibility, or the natural function of parts, and these are called stimuli or excitants. In the immense number of painful disorders we find efficient aid in the internal and external use of sedatives; and we shall find upon reflection, that the greater portion of our remedies, such

as purgatives, emetics, sudorifics, diuretics, errhines, expectorants, &c. are counter-irritants or excitants. Medicines act on the parts to which they are applied, and these are the stomach and intestines, the skin, the surface of the eyes, nostrils, auditory and air passages, the urethra and bladder, the uterus and vagina. Medicines act on the living body, 1. by the direct impression on the organs to which they are applied; 2. by their molecules being absorbed into the mass of blood; 3. by sympathy; 4. by contiguity of organs; and 5. by revulsion.

The *direct* action of medicines is illustrated by the application of collyria to the eye, or caustic to the skin. The *absorption of particles, their admixture with the blood, and their distribution to all tissues or structures*, is proved, beyond doubt, by their detection in different parts. Magendie, Tiedmann, and Gmelin, have detected the odours of alcohol, camphor, and musk, in the blood of animals to which they had administered these substances. The bitterness of wormwood is detected in the milk of animals that eat it, and the purgative taken by a nurse will affect the infant through her milk. Vavasseur and Edwards have demonstrated the presence of the molecules of remedies in the cellular tissue, and in the parenchyma of every organ in the body, and their particles are excreted by the pulmonary or cutaneous transpiration, and by the urinary secretion. An animal fed with madder will have its bones tinged with the colour of this substance. The *sympathetic* action of medicine can be readily illustrated. The remedy is applied to the part, the nerves convey the impression to the brain, and thence it is reflected all over the body. Medicines act by contiguity; as in inflammations of the abdominal viscera, we find fomentations not only relax the integuments, but often mitigate the deep-seated pain. It is upon this principle that we apply ointments and cataplasms over tumours, enlarged glands, &c. We also know that by irritating the extremity of a duct or passage, for example, the canal common to the liver and gall-bladder (ductus communis choledochus) we excite the liver to act more energetically. We therefore find that a purgative which irritates the extremity of this duct in the first portion of the intestinal canal (duodenum) will stimulate the liver, and excite it to secrete more abundantly. The action of medicines by *revulsion* is exemplified in the following manner:—When an irritant is applied to any part, it excites the sensibility or supply of nervous power, as also the afflux of blood in that part; and consequently lessens both in contiguous organs. In this way the applications of blisters, sinapisms, or rubefacients, are highly valuable in deep-seated inflammations, as those of the head, chest, or abdomen. On this principle purgatives, by setting up an artificial disorder in the intestines, will relieve affections of the head, chest, abdomen, and extremities. Those remedies which act on the cutaneous vessels, and on the kidneys and uterus, produce their effects upon the same principle.

The effects of medicines are of two kinds :—1. the *immediate* or *physiological* ; 2. the *secondary* or *therapeutical*. The physiological effect is produced by the changes that take place in the function or natural action of the part to which a medicine is applied ; and is the direct impression made on the body, whether through the nerves or the absorbents.

The therapeutical effects are those salutary changes which take place in the functions of the different organs, by which disorder is alleviated or removed. The immediate effects of medicine influence all parts of the body, whether solid or fluid, in consequence of the universal sympathy, or nervous connexion of the whole, and also by the passage of the medicine into the blood.

In order to ascertain the medicinal properties of each substance, we must carefully observe the modifications produced in the function of each organ. This constitutes the *physiological effects* of medicines, and these are either *local* or *general*. Thus some medicines act on the functions of digestion, circulation, respiration, secretion, and modify them ; and it is upon these modifications that the curative effects mainly depend. Happily for humanity, we possess great dominion over the animal economy, in regulating and modifying its functions. “ When we consider,” says Dr. Spillan, in his excellent supplement to the Pharmacopœias, “ the power which medicinal agents possess over the animal economy, we have sufficient reason to be surprised both at its extent and its importance. By means of it the physician appears to have all the organs of the body and their respective functions under his control. Through it he possesses manifold and valuable resources, by which, if he cannot always destroy the causes of disease, he can frequently attack morbid lesions with success, combat the prevailing symptoms which threaten to prove fatal, and by opposing a medicinal to a pathological disturbance, arrest the further progress of disease.”

It is now the universal opinion that medicines do not possess specific properties distinct from their physiological effects, and to which their curative effects can be ascribed. Hence we now write upon the nature and treatment, not the cure of diseases, as the latter is an indirect consequence of the immediate or physiological effects of medicines upon the system. It is very much doubted whether we possess a single specific remedy ; and the faculty having abandoned this pretension, myriads of empirics proclaim their infallible cures for incurable diseases. “ This, I apprehend,” says Sir Gilbert Blane, “ is so well understood among well-educated physicians, that the word *cure*, as applied to their own merits, is proscribed as presumptuous.”—*Medical Logic*, p. 259.

Such is the opinion of one of the most humane and scientific physicians of which this country can boast—of a physician whose classical and able works are an honour to our medical literature, and whose employment of vegetable remedies has effected a com-

plete revolution in naval medicine. Every one who is acquainted with the naval history of this country must reflect, with deep regret, on the great mortality of seamen during the commencement of the last century, at which time our fleet could not keep the ocean for more than ten weeks without being rendered unserviceable by scurvy, and our national protection was rendered extremely feeble. In the year 1780, Sir Gilbert Blane, Bart. distributed among flag officers and captains an unpublished tract on the improvement of the moral and physical condition of seamen. This essay was well received, and by no individual so favourably as our most gracious and beloved sovereign, who was then at New York. In the following year this tract effected a total change in the state of health of seamen, by the introduction of the juice of lemons or limes, which completely prevented scurvy, and enabled the wooden walls of England to rule the waves at all seasons, in all climates, and for an indefinite length of time. Such are a few of the benefits conferred on science and humanity by this revered physician, and by means of vegetable remedies.

Medicines may be conveyed undecomposed into the circulation either through the intestinal absorbents, the lungs, or the skin, and influence the general system. They may be decomposed in the stomach, blood, or secreting organs, and yet produce effects. They may combine chemically with the contents of the stomach, or intestines, or with the substance of the body itself. They act upon all the organs, and modify all the functions in health and disease. But they have no specific influence in the cure of diseases. The effects of medicines on the body are modified by age, sex, temperament, climate, influence of the mind and passions, and the period of disease.

GENERAL PRECEPTS ON THE MODE OF PRESCRIBING.

Attention to age, sex, temperament, habit, idiosyncrasy, or peculiarity of constitution, mode of life, strength, state of health, season, climate, state of the stomach, &c. is necessary.

Posology, or fixation of doses.—Principles of prescribing: 1. to augment, secure, or modify the effects; 2. to correct irritating effects; 3. to obtain the effects of two or more medicines; 4. to obtain effects which medicines when given separately could not be secured; 5. to render medicine agreeable. For a complete account of this branch of science, see *A New Practical Formulary of Hospitals*, 1836, and *A Manual of State Medicine, and Medical Jurisprudence*, 2nd edit. 1836. By M. Ryan, M.D. I may here observe that as a general rule it is much safer to prescribe a moderate than a full dose of medicine, as it is always easier to repeat the quantity than to obviate the effects of too large a dose.

CLINICAL MEDICINE.

Medicine is a science of facts, founded upon careful observation. All elementary studies in the medical schools are preparatory to clinical or practical observation, and upon this are founded diagnosis, prognosis, and treatment.

It is at the bedside that disease is to be observed, and here we see it in its true character. Clinical observations and instruction afford a correct knowledge of practical medicine.

Indefatigable attention to the medical and surgical practice in hospitals and dispensaries, is indispensable to every one engaged in the study of medicine. In these institutions, the nature and treatment of diseases are explained and the results observed.

Pathological or morbid anatomy has raised medicine to rank with the descriptive sciences. It enables us to contrast the diseased with the healthy states of organs, which general anatomy has already taught us. We must know the healthful state or tissue before we can distinguish the diseased. The principles of pathology are indispensable as well as those of therapeutics, including materia medica, pharmacy, surgery, and hygiology.

The definitions of diseases are guides to medical students, and teach them diagnosis, or the power of distinguishing one malady from another.

A certain group of symptoms characterise a certain disease, as fever, inflammation, &c., but in every such case there may be many other symptoms which are excluded from the definition, and which will vary according to age, sex, habit, &c. &c. because disease in any one part of the body may cause derangement in most or in the whole structures of the human frame.

The clinical professor or medical attendant explains the name of each disease and the best mode of treatment. The student should then study it in some of the best monographic, elementary, or systematic works; and thus acquire a perfect knowledge of it. The history of each disease ought to be repeated in the clinical hospitals, and transcribed by students.

In drawing up a case, the name, age, habit, temperament, occupation, and residence of the patient are to be noted, with the date, particular symptoms, duration of disease, former maladies during infancy, childhood, puberty, adult age, and senescence, and likewise hereditary diseases. The diagnosis, prognosis, and treatment, should be given daily, or oftener, when necessary, and the results, termination, recovery, or morbid appearances, duly recorded.

The style ought to be plain, clear, and concise, and if the narrative be given in an aphoristic form, it will be most precise, as each word will express an idea. We thus mark the name, sex, age, habit, or physical conformation, constitution, temperament, and profession of the patient; also inquire into idiosyncrasies, or peculiarities of constitution, and effects of remedial agents.

We next inquire what is the most distressing, troublesome, or painful sensation. The patient replies that he has pain in some particular part, which at once directs the attention of the inquirer to the seat of his malady. It is in the head, chest, abdomen, or extremities. A momentary glance at the countenance, chest, abdomen, and general appearance, will enable a scientific practitioner to determine the seat of the disease. He can also conclude in a few minutes whether the malady is a disorder of function, an unpleasant sensation, pain, spasm, &c.; or a disease, a change of structure, congestion, inflammation, or the usual sequences of the last, and whether it be acute or chronic.

In either case, disorder or disease of one organ will derange the whole, and may cause painful sensation, in several or all, and consequently a multitude of symptoms.

In every possible case, there is disorder of function, change of structure, or a combination of both.

In disorder of function the nervous power or innervation is abnormal or disordered; and the internal and external use of sedatives is indicated.

In disease, the circulatory system is affected, there is congestion, inflammation, suppuration, ulceration, cicatrization, or gangrene. Disorder or disease may affect all parts of the body, in consequence of the universal distribution of nerves and blood-vessels.

It is most important to determine the existence of the one or the other, as the treatment must be different.

In disorder of function, without change of structure, there may be some unnatural sensation, which may cause pains in all parts of the body, and be removed by the internal and external employment of sedatives.

In disease, general and local bleeding, low diet, counter-irritation, purgatives, and diaphoretics, will be necessary.

In complicated cases, and these are very common, both classes of remedies must be employed.

It is not understood by society that a learned and scientific practitioner examines the head, chest, and abdomen, in a minute or two; and patients suppose that they must detail every sensation they have felt for preceding months or years.

All complaints are either disorders or diseases, or both combined; and the latter are acute or chronic. The simple questions, what is the matter? where have you pain? what distresses you most? will enable the inquirer to detect the seat of the malady almost in an instant. He then determines whether it is disorder or disease, and prescribes the appropriate remedies.

The fundamental principles of medicine are most happily fixed, or it would be impossible to arrive at a correct notion of disease.

Many patients cannot express their ideas correctly, and jumble the most opposite symptoms together, they enter into long digressions, and frequently confound the most different symptoms. They

complain of all diseases. The question, where have you the most pain? or where did it commence? will lead the practitioner at once to the chief seat of the complaint.

In examining nervous and some other patients, much time will be saved by inquiring which of your complaints is worst, and what was the first symptom; it affords a light which guides us through great darkness; and by it, we distinguish the circumstances that precede the attack, as well as the nature of the complaint itself.

There are some patients who exaggerate their sufferings, and whose expression of pain is not always real. Others put insidious questions to their medical adviser, in order to learn his opinion of their condition, such as hypochondriacs, nervous, and parturient women. The former suppose that they labour under one or many fatal diseases; the last are anxious to learn are they in a safe condition, and how soon they will be well or delivered.

We also observe many who simulate a variety of diseases with great success; but the pathological symptoms which belong to the functions independently of the influence of the brain, are the signs on which we can place absolute confidence. Physical signs will never deceive us, and we should always judge by them. The statements of patients, or sometimes of medical practitioners, cannot always be relied on, while physical evidence is invariably correct.

In examining patients, we should inflect the voice, and avoid putting our questions too abruptly, lest we confuse and embarrass them. There is an excellent chapter in the work of M. Double on *Semeiotics*, as to the method of examining the sick; and further information may be derived from the productions of MM. Merat, Cruveilhier, and Martinet (see Dr. Quain's Translation). M. Double divides the subject into two distinct parts: 1. the knowledge of the history preceding the disease; 2. the circumstances which appertain to the disease itself. The physician ought to investigate all circumstances relative to surrounding objects, season, temperature, and medical topography, where he practises. He then learns the age, sex, profession, occupation, or mode of life of the patient; the passions, habits, general health, or ordinary state of functions; state of health before the invasion of the disease; the hereditary diseases of the father, mother, and family; the antecedent diseases from the period of infancy; and, lastly, the general effects of medicines upon the constitution.

The practitioner ought to sit by the bedside, so as to see the patient's countenance, and then examine the external appearance of the body, attitude, movements, coloration of the skin, &c.; he then compares the existing and natural states of the functions, and proceeds to inquire into the state of the external senses, respiration, circulation, including the state of the heart and pulse, digestion, secretions, excretions, generation, sensibility, irritability, voice, voluntary motions, sleep, intellectual faculties, and temperature of the body. Every part of the human body is thus examined and passed

in review. We also know all that belongs to the symptoms, mutations, and sympathies; all the circumstances that can modify the signs and prognosis of diseases. The nature and treatment of the complaint are then easily determined.

It is right to visit the patient at the paroxysmal periods, or when he is worse; and also at other hours.

It is worthy of remark that individuals who suffer from the effects of libertinage are often ashamed and disposed to mislead their medical advisers. A large experience warrants me in stating, that the abuse of the generative function is a most common cause of indigestion, hypochondriasis, (neuralgic or painful,) and nervous complaints. It requires great delicacy and caution in alluding to this function at all times, but especially when young persons are our patients. The excitation of the generative organs at puberty, and often during the whole time of celibacy, leads to the adoption of natural or other means for its subdual. There are, of course, exceptions to this general proposition. Those who abuse or over-exert this function are affected with severe indigestion, flatulence, lowness of spirits, fear of death, dread of impotence, and innumerable unpleasant sensations. Such cases are of frequent occurrence from the age of puberty to the decline of life, and sometimes even in old age. The celebrated Tissot has given numerous illustrations in his work on Onanism; and a vavener have fallen under my own observation. (See also, "*De l'Onanisme et des autres Abus Veneriens, considérés dans leur rapports avec la Sante,*" par M. Deslandes, 1835.)

In delivering an opinion to a patient, the physician, or medical practitioner, ought, in general, to predict a favourable result, when circumstances permit; avoid alarming him, and hope for the best. He may, however, express his real opinion to the relatives, so as to give them the opportunity of consulting others if they think proper.

In most cases the prognosis must be guarded, as so much depends upon the mutations of disease, punctuality of attendants in following directions, on the season, situation, and compliance of the sick. Medical practitioners have often been most unjustly ridiculed by the world on account of the ambiguity of their opinions as to the issue of acute diseases; but no man, for the reasons just mentioned, can be positive as to the prognosis. He may state he is most happy to say that, at this moment, there is no danger, but diseases undergo numerous changes, and that it is utterly impossible to predict with certainty the result.

This is the fact, and truth, in the majority of human infirmities, more especially when in acute form.

The diagnosis, or distinction of diseases, is also a matter of grave importance. If the disease is mistaken, censure of the medical attendant will assuredly follow. Thus, suppose it is stated, that a young woman of irreproachable character is affected with gonorrhœa, or is pregnant, where there is really no such disease or condi-

tion, the practitioner would be most severely and unjustly censured. It was a common error to assert that female children, from the age of six to fourteen years, had been violated and infected with gonorrhœa, when their condition depended upon physical diseases. Such cases are noticed by Underwood, Hamilton, Dewees, Jewel, Sir Astley Cooper, and numerous French authors.

It is important to gain the confidence of the sick, so as to obtain the disclosures which are necessary to form a proper decision on their diseases. The medical adviser should be calm and conciliating, hear patiently all communications, put his questions with mildness, listen attentively to the narrative of all complaints, and always show a warm interest in the welfare of his patients. He ought to possess sensibility, humanity, amenity, amiability, and compassion. He must make great allowances for the conduct of those in pain and suffering. Thus a medical practitioner must display all the finer feelings of human nature, and all the moral excellencies which distinguish the true cultivators of his art, while he is affording aid at the painful process employed by nature at the nativity of his species. Women are naturally timid at this period, and require all the sympathy and kindness that can be shown towards them.

The medical practitioners ought to be most patient, humane, benevolent, and never resent any offensive remarks that may be applied to them by the sick. Such remarks are invariably apologised for by patients.

Lastly, they ought to be cool and undisturbed in the worst cases. Perturbation of mind betrays weakness and ignorance. If agitation and indecision characterise us, the patient will lose all confidence in us.

One who knows his profession well, will never be agitated; he will employ the resources of his art, and if these fail, he will remember that all medicine is from God, and that it may not be accordant with his divine will that recovery should happen in any given case of disease. It is right to add, that medical pupils should avoid fatiguing hospital or dispensary patients, whom misfortune has placed in such asylums, by asking the same questions several times over, and often without any determinate object. "It should never be forgotten," says Dr. Martinet, "that misfortune has the strongest claims on the sympathy of every man; and that every principle should prompt us not to expose ourselves to such a censure as Martial passed on one of the physicians of his time:—

" *Languebam, sed tu comitatus protinus ad me
Venisti centum, Symmache, discipulis.
Centum me tetigere manus, Aquilone gelatæ,
Non habui febrem, Symmache, nunc habeo.*"

In acute diseases, the previous history of the patient is of little importance, though of great value in chronic complaints. Repose and quietude are essential in the former cases, as the circulation of

the blood is generally accelerated. Much stress is laid on a knowledge of the constitution, as it enables us to foresee, in most cases, the form which diseases are likely to assume, the course they will probably take, and the termination that may be expected.

The temperament informs us of a certain organic development, and of the diseases to which it is most liable.

The physical conformation also predisposes to diseases. Thus, infants, whose heads are disproportionately large, are liable to encephalitis, hydrocephalus; those with narrow chests, to diseases of the lungs; and those in whom the abdomen is large, to gastro-intestinal irritation, inflammation, or ulceration.

We review the different organs in the body, we consider them in reference to their predominance of action, their susceptibility relative to climate, seasons, different temperatures, aliments, drinks, exercises, passions, and habitual or accidental diseases.

The rules for prescribing and compounding medicines ought to be well understood. Diseases are cured with medicines, and not with words. The relief or cure of the patient is the sole end of medicine. All elementary studies are subservient to this great and important object. It is the aim and end of medicine.

NOSOGRAPHY,

PRACTICE OF MEDICINE.

IN this country the Cullenian nosology of diseases is as yet almost universally adopted, on account of the fidelity and accuracy with which its celebrated author has graphically given his definitions. These definitions are, in general, unequalled. But the complication of symptoms excited through the medium of sympathy is illimitable, and hence we can never meet with diseases as described in books or lectures, though we can in general distinguish the leading signs of each. It is this complication of many symptoms that confounds those unacquainted with science, when they refer to popular works on medicine.

Diseases are divided into, 1. functional ; 2. structural ; 3. mechanical ; 4. parasitical. They may be special or simple, but are generally complicated.

Diseases are classified according to morbid anatomy. They are also divided into hereditary, congenate, or innate, such as occur after conception during intra-uterine life ; endemic, epidemic, sporadic, contagious, infectious, idiopathic or primary, and symptomatic or sympathetic.

Diseases are further classed into acute and chronic, continued, intermittent and remittent, general and local. They are known by symptoms or signs, and they were arranged as follows by Cullen : 1. Pyrexiae, febrile diseases ; 2. Neuroses, nervous diseases ; 3. Cachexiae, cachectic diseases ; 4. Locales, local diseases.

The more modern classification of disorders and diseases is arranged according to the physiological systems, and ultimate tissues of organs, founded on general anatomy, and this is true physiological medicine. This plan is now almost generally adopted by medical teachers, and is much more natural than former nosological arrangements. I have arranged it as follows, in my lectures on the Principles and Practice of Medicine delivered at the Hunterian School of Medicine, Great Windmill Street, Haymarket, founded by Dr. William Hunter in 1764, and it is also adopted by my colleague, Mr. Wardrop, in his Lectures on Surgery at the same school.

CLASSIFICATION OF DISEASES.

General Method of Examination applicable to all Diseases.

General remarks on clinical or bedside medicine ; present condition of the patient ; examination of all the physiological systems, the nervous, circulatory, respiratory, digestive, secretory, locomotive and sexual system, &c. in every case ; age, sex, mode of life, residence, former diseases, predisposition, hereditary affections, state of general health, peculiarity of constitution, temperament ; history of the symptoms, and causes of the present disease ; is the disease structural, or functional ? is there alteration of tissue, or is the complaint nervous or functional ? importance of a correct diagnosis in every case of disease.

Method of examination applicable to diseases of the Brain.—Intellectual faculties ; sensitive system ; locomotive system ; digestive system ; circulating system ; respiratory system ; urinary system.

Method of examination applicable to diseases of the Chest.—Structure of the lungs ; normal and abnormal respiration ; signs afforded by auscultation ; percussion, succussion ; mensuration.

Method of examination applicable to diseases of the Abdomen.—Examination of the digestive apparatus ; tongue ; mouth ; matter vomited ; evacuations ; sensibility ; examination of the urinary organs and generative system, summary of indications.

Method of examination applicable to lesions of the Primary Tissues.—Examination the cellular, cutaneous, and mucous systems ; examination of the muscular, fibrous ; synovial ; serous ; vascular and nervous systems.

Method of making Autopsic and Neerotomic examinations.—Method of examining the brain ; spinal canal ; vertebral column and thorax ; examination of the mouth ; pharynx, larynx, and trachea ; examination of the abdomen ; normal and abnormal states of organs.

CLASSIFICATION OF DISEASES.—Nosological and physiological arrangements ; method founded on general anatomy ; true physiological medicine.

Diseases of the Brain and its Membranes ; abnormal vascular action.—Encephalitis, cerebritis, phrenitis, inflammation of the substance of the brain ; inflammation and diseases of the dura mater ; arachnitis ; acute and chronic hydrocephalus ; diseases of innervation ; apoplexy ; paralysis ; lethargy ; coma ; carus ; cataphora ; rimolissement, or softening of the brain ; hypertrophy, tubercles, cancer, and ossification of the brain ; mania ; amentia ; and idiotism ; neurites ; neuroses, neuralgia, spasmodic disorders ; constitutional and local irritation ; abnormal sensations in different parts of the body ; epilepsy ; chorea ; hypochondriasis ; hysteria ; delirium tremens.

Diseases of the Spinal Marrow and its Membranes.—Myelitis, spinal arachnitis; hydrorachitis spina bifida; tumours of the medulla spinalis and its membranes. Spinal irritation; concussion; relaxation; incurvation, excurvation, lateral curvature.

Diseases of the Heart, Pericardium, Arteries, and Veins: diseases of the Circulatory system.—Physiology and pathology of the heart; endocarditis, or inflammation of the internal membrane of the heart and fibrous tissue of the valves; endocarditis during the period of hypertrophic thickening of inflamed tissues, and of the development of adhesions, membranous, cellulo-fibrous or fibrous patches, and of vegetations or granulations; endocarditis succeeded by fibro-cartilaginous, osseous, or calcareous states of the valves of the heart, with or without contractions of the orifices of this organ; thickening and induration of the valves of the heart with considerable contraction of the left auriculo-ventricular orifice by induration and thickening of the bicuspid valve; contraction of the aortic orifice by induration and thickening of the tricuspid valve; contraction of the pulmonary orifice by induration and thickening of the sigmoid valves of the pulmonary artery; simultaneous contraction of several of the orifices of the heart, by thickening and induration of their valves; general and partial endocarditis; its three stages, symptoms, diagnosis, prognosis, and treatment.

Carditis, or inflammation of the muscular tissue and intermuscular tissue of the heart; ramollissement and suppuration; ulceration, perforation, and rupture of the parietes of the heart; of the inter-ventricular and interauricular septa, or partitions of the valves, tendons, and fleshy columns; ulcerative endocarditis with an aneurismal cyst; (aneurismal tumour of the heart;) carditis succeeded by induration; symptoms, diagnosis, prognosis, and treatment of carditis, or inflammation of the muscular tissue, and of the intermuscular cellular tissue of the heart; softening, diffused suppuration, and abscess; ulcerations of the heart, with or without the formation of an aneurismal cyst, perforations, induration of the heart; cartilaginous, osseous, calcareous, tuberculous, and cancerous diseases of the heart. Can these be developed without chronic inflammation of the heart? Partial, eccentric, and concentric hypertrophy of the left ventricle of the heart; simple hypertrophy, with the normal capacity of the ventricular cavity; eccentric hypertrophy, with dilatation of the ventricular cavity; concentric hypertrophy, with contraction of the ventricular cavity; hypertrophy of the ventricle, with similar abnormal conditions; anatomical characters, signs of hypertrophy, its influence on hæmorrhages in general, and on those of the brain and lungs in particular; local and general effects of hypertrophy of the different parts of the heart, on the brain and lungs; treatment; dilatation, with hypertrophy of the ventricles; dilatation, with hypertrophy of the auricles.

Atrophy, or diminution of nutrition of the heart; causes and treatment. *Augmentation and diminution of the absorption of the*

serous and cellular tissues of the heart ; essential and primitive diseases, or the physical and mechanical lesions of the heart ; wounds of the heart : anatomical characters, causes, signs, diagnosis, prognosis, and treatment of ruptures of the heart ; changes of dimensions of the cavities and orifices of the heart : anatomical characters, mechanism, and principal causes, diagnosis, and treatment ; contraction of the cavities and orifices of the heart ; displacements and herniæ of the heart ; primordial vices of situation and conformation of the heart ; dextrocardia or congenital (primordial) transposition of the heart to the right side ; displacement of the heart, thoracic, and abdominal viscera ; communications between the cavities of the heart ; acardia, bicardia, augmentation and diminution of the secretion of the serous and cellular tissue of the heart ; pericarditis, sanguine congestion, suppuration ; plastic effusion gradually transformed from an amorphous state to a state of cellulous or cellulo-fibrous organization ; pericarditis, in which the accidental products are transformed into fibrous, fibro-cartilaginous, cartilaginous, calcareous, and osseous patches ; angina pectoris ; hydropericardium ; acute and chronic pericarditis ; passive hydropericardium, and passive œdema of the cellular tissue of the heart ; hydropericardium, caused by the rupture of an hydatid cyst in the pericardium ; hæmopericardium, or effusion of blood into the cavity of the pericardium ; pneumopericardium and hydro-pneumopericardium ; aortitis ; aneurism of the aorta ; phlebitis ; varicose veins ; polypiform concretions, amorphous, without any trace of organization—with traces of organization ; fibrous concretions completely developed ; disorders of innervation, or neuroses of the heart ; nervous palpitations ; neuralgia of the heart ; spasm of the heart, with bellows sound, and feline murmur, or purring sound (*fremissement cataire*) ; lipothymia, and nervous syncope ; irregularities and intermittences of the pulsations of the heart.

Inflammation in general : idiopathic and specific ; acute and chronic ; treatment in general. Fevers inflammatory : typhous, intermittent, remittent, and exanthematous, or eruptive ; yellow fever ; plague. Cachectic diseases—morbid state of the blood : scurvy, purpura, anemia, malignant epidemic cholera, with blueness of the skin. Specific diseases ; scrofula, cancer, fungus hæmatodes, melanodes, syphilis, variolous, vaccine, and urethro-vaginal viruses—virus of rabid animals, hydrophobia ; poisoning by decomposed animal matter ; dissection, wounds ; poisoning by semi-decomposed animal food, certain fishes, bites of venomous serpents.

Diseases of the Respiratory organs, Air tubes, and Lungs.—Structure of the lung ; normal and abnormal states ; catarrh ; bronchitis ; pneumonia, pulmonary apoplexy, hæmoptysis, empyema, gangrene, œdema, emphysema, pleuritis, hydrothorax, pneumo-thorax : tubercles, phthisis, pulmonary abscess ; abnormal products in the lung and pleura ; neuroses ; asthma ; pertussis, or whooping cough ; pleurodynia.—Diseases of the air tubes : laryngitis, tracheitis, tracheitis

spasmodica (croup), laryngismus stridulus (spasmodic croup), ulceration of the larynx, or laryngeal phthisis; œdema of the glottis.

Diseases of the Digestive organs, and their connexions, or organs of Mastication and Deglutition.—Gingivitis; stomatitis; glossitis; tonsillitis, or cynanche (angina) tonsillaris; pharyngitis; cancer of the pharynx; angina vel cynanche ulcerata, cynanche maligna.

Diseases of the organs of Mastication.—Diseases of the lips, gums, teeth; odontia, painful dentition; odontalgia, tooth-ache; cheeks; uvula and fauces; aphthæ.

Diseases of the organs of Deglutition.—Staphylitis, or inflammation of the uvula; pharyngitis, cancer of the pharynx; angina, vel cynanche ulcerata, ulcerated sore throat, simple and syphilitic; angina gangrenosa vel maligna, putrid sore throat; œsophagitis, stricture, tumours, and cancer of the œsophagus; spasm of the œsophagus; dysphagia.

Diseases of the Stomach.—Gastritis acutus et chronicus; ulceration of the cardiac and pyloric apertures of the stomach; scirrhus and cancer of these orifices; hæmatemesis, or vomiting of blood. *Neuroses of the Stomach:* gastralgia, or gastrodynia, spasm of the stomach, flatulence, or gaseous-eructations; dyspepsia, pyrosis, or waterbrash, acid and alkaline secretions; cholera, malignant, epidemic, or blue cholera; perforation of the coats of the stomach.

Diseases of the small and large Intestines.—Enteritis, inflammation of the small intestines; duodenitis; of the jejunum, ilium, ileus, iliac passion; inflammation of the large intestines, cœcum, colon, colitis; dysentery; arclitis, or inflammation of the rectum; diseases of the rectum, stricture, ulceration, cancer; hæmorrhoids; piles; entralgia, intestinal irritation, colic, colica pictorum (painter's colic), intussusception; vermination, or intestinal worms; alvine concretions.

Diseases of the Liver.—Hepatitis acutus et chronicus; abscess; hydatids, or encysted dropsy; hepatalgia, fungus, scirrhus, cancer, ossification, and other degenerescences of the liver.

Biliary concretions, or calculi; icterus, or jaundice.

Diseases of the Spleen.—Splenitis acutus et chronicus; enlargement of the spleen (ague cake); splenalgia.

Peritonitis; adhesions; effusion, ascites, abdominal dropsy.

Diseases of the Mesentery and Pancreas.—Anomalous tumours in the abdomen.

Diseases of the Urinary organs.—Nephritis; calculus in the kidney; gravel; calculus in the ureter, bladder, urethra; suppression of the secretion of urine; excessive secretion, diabetes; normal and abnormal states of the urine; cystitis; hæmaturia, diseases of the urethra.

Diseases of the Generative organs.—Syphilis; blenorrhagia; phymosis, paraphymosis; gangrene, cancer; diseases of the testes.

Diseases of the female organs.—Metritis; cancer uteri; uterine tumours; erythrit, or inflammation of the vagina; diseases of the ovaries; (see my *Manual of Obstetrics*.)

Diseases of the organs of Sense.—Diseases of the eye, tongue, ear, and nose.

Diseases of the Skin.—Anatomy, physiology, and pathology of the skin ; treatment in general of cutaneous diseases ; various classifications of diseases of the skin ; of Mercurialis, Lorry, Retz, Plenck, Derrien, Wilson, Willan, Bateman, Plumbe, Dendy, Ali-Paget, Rayer, Bielt, Cazenave and Schedel, Green ; Dr. Ryan's new classification. I. Dermatitis. II. Dermohæmorrhagiæ. III. Dermoneuroses. IV. Dermachromata, Dermochroia, decolorations. V. Dermodyschroia, dyschroia, maladermia, discolorations. VI. Dermocacecrises, abnormal states of perspiration. VII. Dermocryptoncoses, tumours of the cutaneous cryptæ or follicles. VIII. Adermata, congenital absence and defects of conformation and tissues of the skin.

Diseases of the appendages of Skin.—Onychonology, description of diseases of the nails ; onyxia, onychia ; onychohæmorrhagia, subungual ecchymosis ; onychensarcia, the nail growing into the flesh ; onychophthoria, morbid alterations of the nails ; abonychia, absence of the nails ; onychoptosis, fall of the nails ; polyonychia, supernumerary nails ; onychophyma, tumefaction or enlargement of the nails ; onychogryptosis, curvature of the nails ; onychodyschroia, accidental coloration of the nails.

Diseases of the Hair.—Trichonology ; trichomatitis, inflammation of the hair ; plica Polonica ; canities, trichodyschroia, decoloration ; alopecia, baldness ; atrichomata, absence of the hair ; polytrichomata, supernumerary hairs ; trichiasis, vicious direction of the hair.

Anomalous diseases connected with the Hair and Skin.—Trichodermo-ataxopathy ; phthiriasis, morbus pedicularis ; pediculi ; pullex ; acarus scabiei, itch insects ; sarcoptes, flesh worms ; œstrus ; astremus ; elephantiasis ; lepra ; Barbadoes leg ; Cochin leg.

Diseases of the Cellular tissue.—Structure of the cellular tissue ; phlegmon ; furunculus, or boil ; anthrax, carbuncle ; malignant anthrax ; œdema ; subcutaneous emphysema ; induration of the cellular tissue.

Diseases of the Mucous membrane.—Structure and diseases of mucous membrane ; inflammation of the gastro-pulmonary, and genito-urinary mucous surfaces ; imperforations, adhesions, and strictures of mucous canals ; excoriation and ulceration ; polypi, concretions, foreign bodies.

Diseases of the Serous membrane.—Structure of serous membrane ; inflammation, effusion, dropsies ; effusion of pus, empyema.

Diseases of the Synovial membrane ; Bursæ and articular Cartilages.—Structure of these tissues ; synovitis ; hydrarthrosis, dropsy of the joints : moveable bodies in joints ; diseases of the bursæ ; inflammation ; ganglion ; inflammation of the articular cartilages ; ulceration ; ankylosis ; articular rheumatism ; podagra, gout.

Diseases of the Muscular and Tendinous tissues.—Structure and

disease of the muscles and tendons ; contusions ; sprains ; wounds ; lacerations ; gangrene.

Diseases of the Osseous tissue.—Structure and diseases of bones ; inflammation ; caries ; necrosis ; ossification of fractures ; exostosis ; periostitis ; inflammation of the medullary membrane ; general remarks on dislocations ; fractures and diseases of the joints.

Diseases of the Glandular and Absorbent system.—Structure and diseases of lymphatic glands ; scrofula ; mesenteric disease ; general remarks on diseases of the mamma, testis, prostate, thyroid, salivary glands, and tonsils.

Parasitical diseases.—Development and treatment of various tumours and abnormal growths, displacements, and malformation of organs.

The Cullenian Nosology is still followed by the medical examiners in this kingdom, and by a preponderating majority of practitioners : and for these reasons it is retained in this work. I have differed from it because it was not based on morbid anatomy, but so far as semeiology is concerned, it cannot be surpassed for accuracy. It is prefixed to the different classes of diseases in the succeeding pages.]

CLASS I.

PYREXIÆ; OR FEBRILE DISEASES.

CHARACTER.

Increased heat and frequency of pulse after a shivering, accompanied with a disturbance in many of the functions, and diminution of strength, especially in the limbs.

ORDERS:

FEBRES.	FEVERS.
EXANTHEMA.	ERUPTIVE FEVERS.
PILLEGMASIÆ.	INFLAMMATIONS.
HÆMORRHAGIÆ.	HÆMORRHAGES.
PROFLUVIA.	FLUXES.

ORDER I.

FEBRES. FEVERS.

CHARACTER.

Pyrexia, without any primary local affection, preceded by languor, lassitude, and other symptoms of debility.

The order Febres is divided into Continued and Intermittent, and Remittent Fevers.

GENERA.

Continued Fevers.

1. SYNOCHA.	INFLAMMATORY FEVER.
2. TYPHUS.	NERVOUS FEVER.
3. SYNOCHUS.	MIXED FEVER.

Intermittent Fevers.

1. QUOTIDIANA.	EVERY-DAY AGUE.
2. TERTIANA.	THIRD-DAY AGUE.
3. QUARTANA.	FOURTH-DAY AGUE.

Continued Fevers.

SYNOCHA.—INFLAMMATORY FEVER.

GENERIC CHARACTER.—A steady and great increase of heat; pulse strong, large, and frequent; urine high-coloured, and deposits a red sediment; the functions of the mind not disturbed; no diminution of muscular power.

SYMPTOMS.—Lassitude and general anxiety, succeeded by rigors, or cold shiverings, alternating, with transient flushes, and terminating in a violent and continued heat; the countenance is flushed; there is [pulsation of the temporal and carotid arteries, intolerance of light and sound, great sense of weight in the head,] a suffused redness of the eyes and skin generally; the pulse is frequent, strong, and regular; great thirst; white tongue; scanty and high-coloured urine, depositing a red sediment; costiveness; morbid sensibility, and intolerance of usual impressions; hurried respiration; extreme anxiety; [dull pains in the limbs; an exacerbation in the evening, or at night; as the disease advances the skin becomes hot, the tongue dry, or covered with a brownish crust; there is delirium and great debility at the approach of death.]

CAUSES.—*Predisposing.*—Plethoric habit of body, with a strong muscular system, a good and unimpaired constitution.

Exciting.—Sudden alternations of temperature, as the application of cold to a heated body; violent exercise; intemperance; the suppression of usual evacuations; repulsion of eruptions; strong passions of the mind; the too free use of vinous or spirituous liquors.

DIAGNOSIS.—*From Typhus.*—By the more sudden accession of the disease, by its arising from the common causes above enumerated, and not from contagion; by the *strength* and *hardness* of the pulse; the *whiteness* of the tongue; by the *high* colour of the urine, and its affording the lateritious sediment.

PROGNOSIS.—*Favourable Symptoms.*—About the seventh day a moisture appearing upon the skin, succeeded by an universal and natural perspiration; hæmorrhage from the nose; the appearance of scabby eruptions about the mouth and ears; suppuration of glandular parts; the formation of abscesses; diarrhœa; the urine depositing a furfuraceous or lateritious sediment; diminished sensibility; the pulse more slow and soft.

Unfavourable Symptoms.—Intense pain in the head, with ferocious delirium; extremely laborious respiration; strong, hard pulse, and other symptoms indicating excessive action, by the inordinacy of which the disease usually proves fatal; or by a determination to internal organs, when the disease ceases to be synocha, and runs into phrenitis, pneumonitis, hepatitis, or an inflammation of some other viscus; picking the bed clothes; hiccup; subsultus tendinum or starting of the tendons; involuntary evacuations. [Recovery may however happen under all these circumstances.]

[*Morbid Appearances.*—On autopsic examination, we discover traces of inflammation in some of the principal organs.]

TREATMENT.—*Indication.*—To lower excessive action.

1. By diminishing or removing certain natural impressions, which in the febrile state become morbid stimuli; such are impressions upon the senses, stimulating operations of the mind, aliment, the

effects of slight sound and motion, the contents of the intestinal canal, &c.

2. By diminishing the quantity of the circulating fluids, and lowering the tone of the vascular system: this is to be effected by bleeding, purging, laxative clysters, diaphoretics. [Cold ablution, as sponging with cold fluids, free ventilation, light bed-clothes, &c.

Mittatur sanguis è brachio ad animi defectionem, et repetatur pro re natâ.

At the commencement a copious and rapid evacuation of blood is absolutely necessary, and subsequent smaller bleedings, are to be instituted according to the strength and hardness of the pulse and the urgency of the symptoms. Leeches are occasionally to be applied to the temples, and blood taken away between the shoulders, &c. [The rule with regard to venesection in this and all cases is, that we should be guided by the effect produced, and not by the quantity of blood abstracted, and therefore we can never prescribe the exact amount to be taken. One person will faint on the removal of $\frac{5}{8}$ vj., and another will bear the loss of $\frac{5}{8}$ lx. Whenever blood-letting is required, a free orifice should be made in the vein.]

HAUSTUS PURGANTES SALINI.

Saline Purging Draughts.

R. Magnesie Sulphatis $\frac{5}{4}$ v.; Infusi Sennæ f $\frac{5}{8}$ xij; Syrupi Aurantii f $\frac{5}{8}$ j: Fiat haustus purgans.

R. Sodæ Sulphatis $\frac{5}{4}$ v; Infusi Sennæ f $\frac{5}{8}$ xij; Syrupi Aurantii f $\frac{5}{8}$ j: Fiat haustus purgans.

The common *black* dose, which should be kept ready prepared in every shop, differs very little from the above, and is as follows:—

R. Magnesie Sulphatis $\frac{5}{4}$ v; Infusi Sennæ f $\frac{5}{8}$ xij; Tinctura ejusdem f $\frac{5}{8}$ jss; Syrupi Zingiberis f $\frac{5}{8}$ j; Spiritus Ammonie Compositi m xx: Fiat haustus.

The following *white* dose is equally efficacious.

R. Magnesie Carbonatis $\frac{5}{4}$ j; Magnesie Sulphatis $\frac{5}{4}$ j; Succo Limonis Recentis f $\frac{5}{8}$ j; Syrupi Limonis f $\frac{5}{8}$ j; Aquæ Menthæ Viridis f $\frac{5}{8}$ x: Misce pro haustu cathartico.

R. Potassæ Tartratis $\frac{5}{4}$ j; Infusi Sennæ f $\frac{5}{8}$ xij; Syrupi Aurantii f $\frac{5}{8}$ j: Fiat haustus purgans.

PULVERES PURGANTES COMMUNES.

Common Purging Powders.

R. Pulveris Rhei gr. xxv; [Cinnamomi Compositi gr. v]; Potassæ Supertartratis $\frac{5}{4}$ j: Fiat pulvis ex quovis vehiculo crasso capiendus.

R. Pulveris Jalapæ ʒj; [Pulveris Zinziberis gr. vj]; Potassæ Supertartratis ʒj: Fiat pulvis ex syrupo sumendus.

R. Potassæ Sulphatis ʒss; Pulveris Rhei ʒj; [Pulveris Capsici gr. ij: Fiat pulvis ex syrupo limonis capiendus.

[PILULE PURGANTES.

R. Extracti Colocynth. comp. ʒss; Hydrargyri Submur. gr. vj; Olei Menthæ Pip. m. ij; divide in pilulas vj: Sumat duas secundâ quaque horâ, ad effectum.

It is advantageous to exhibit two of the pills, and some one of the aperient draughts already prescribed in two or three hours afterwards, unless the bowels be disposed to act.

In chronic diseases two of these pills taken at night, and a black or aperient draught next morning, will produce more beneficial effects than either medicine alone.]

PULVERES DIAPHORETICI SALINI.

Saline Sudorific Powders.

R. Pulveris Antimonialis gr. iv; Potassæ Supertartraris gr. vj: Fiat pulvis ex syrupo sumendus.

R. Pulveris Antimonialis gr. iv; Potassæ Nitratis gr. v: Fiat pulvis ex quovis vehiculo crasso sumendus.

HAUSTUS SALINI COMMUNES.

Common Saline Draughts.

R. Potassæ Subcarbonatis ʒj; Succî Limonis recentis quantum sufficit ad perfectam saturationem alkali; Aquæ Cinnamomi fʒij; Aquæ destillatæ fʒviij; Syrupi Aurantii fʒj: Misce pro haustu.

R. Sodæ Subcarbonatis ʒj; Succî Limonis recentis q. s. ad alkali saturationem; Aquæ Cinnamomi fʒiij; Aquæ destillatæ fʒviij: Fiat haustus.

R. Liquoris Ammoniac Acetatis fʒiij; Aquæ destillatæ fʒx; Potassæ Nitratis gr. x; Syrupi Aurantii fʒj: Fiat haustus.

R. Potassæ Supertartratis gr. xv; Sodæ Boratis ʒss; Aquæ Cinnamomi fʒiij; Aquæ destillatæ fʒx; [Olei Menthæ Piperitæ mj: Fiat haustus.

One or other of these draughts or powders should be exhibited every four or six hours; and if no perspiration be produced, a powder and draught should be given together.

MISTURÆ DIAPHORETICÆ.

Sudorific Mixtures.

R. Liquoris Antimonii Tartarizati $\text{f}\overline{\text{ss}}$; Potassæ Nitratis ℥ij ; Aquæ Menthæ Viridis $\text{f}\overline{\text{ss}}$; Syrupi Rosæ $\text{f}\overline{\text{ss}}$: Fiat mistura, cujus capiat æger cochlearia tria magna tertiâ vel quartâ quaque horâ.

R. Liquoris Ammoniac Acetatis $\text{f}\overline{\text{ss}}$; Potassæ Nitratis ℥ss ; Misturæ Camphoræ $\text{f}\overline{\text{ss}}$; Syrupi Rosæ $\text{f}\overline{\text{ss}}$: Fiat mistura; sit dosis cochlearia tria magna tertiâ quaque horâ.

R. Sodæ Subcarbonatis ℥j ; Succî Limonis recentis q. s. ad alkali saturationem; Misturæ Camphoræ $\text{f}\overline{\text{ss}}$; Potassæ Nitratis ℥ss ; Syrupi Rheados $\text{f}\overline{\text{ss}}$: Fiat mistura, cujus capiantur cochlearia tria magna quartâ quaque horâ.

For a common drink, the patient may have one of the following:—

The acidulated soda-water, after the fixed air has escaped.

The infusum rosæ, diluted with balm-tea, imperial, lemonade, [or barley water acidulated with lemon-juice or vinegar, or cold water, or cold toast and water.]

IMPERIAL DRINK.

R. Potassæ Supertartratis $\overline{\text{ss}}$; Sacchari Purificati $\overline{\text{iv}}$; Corticis Aurantii recentis $\overline{\text{ij}}$; Aquæ Ferventis ℥ij : Misce pro potu ordinario.

A drachm of nitrate of potass may be added with advantage.

LEMONADE.

R. Succî Limonis recentis $\text{f}\overline{\text{ss}}$; Corticis Limonis recentis $\overline{\text{ss}}$; Sacchari Purificati $\overline{\text{iv}}$; Aquæ Ferventis ℥ij : Misce pro potu communi.

Also,

R. Syrupi Limonis $\text{f}\overline{\text{ss}}$; Aquæ destillatæ ℥ss ; Misce.

The nitrate of potass is also a very useful addition to these, in the proportion of two scruples to a quart.

3. By abstracting heat; by cool air; sprinkling the floor of the room with vinegar and water; agitating the surrounding atmosphere; by free ventilation; regulation of clothing; occasionally removing the bed-clothes, or taking the patient out of bed; by frequent draughts of cold acidulated liquors or of common water; by the affusion of cold or tepid water; or by sponging the body with a mixture of vinegar and water, [with a little ardent spirit,] when the heat of the body is *above* the natural standard, and when there is no general or profuse perspiration. See the observations on ablu- tion in synochus.

If there is delirium, or determination to any organ, topical bleeding, blisters, fomentations, pediluvium, and the treatment elsewhere laid down for the inflammation of the organ affected.

If the pulse sinks and the extremities become cold, sinapsisms to the feet, cordials, especially camphor and æther.

R. *Misturæ Camphoræ* fʒvj; *Spiritus Ætheris Sulphurici Compositi* fʒss; *Spiritus Ammoniac Compositi* fʒj; *Syrupi Aurantii* ʒiv; *Misce.* Cujus capiat aeger cochlearia duo magna in horas.

[The treatment under such circumstances should be similar to that for the last stage of synochus, or for typhus gravior. Pure synocha, or fever without congestion or inflammation in the head, chest, abdomen or joints, is seldom if ever seen in this country.]

TYPHUS.—NERVOUS FEVER.

GENERIC CHARACTER.—Contagious pyrexia; heat but little increased; pulse weak and small, and in general frequent; urine little changed; the animal functions much disturbed; great prostration of strength.

In general the heat is but little increased at first; but in some cases of typhus the heat is great and peculiar, leaving an unpleasant penetrating sting or sensation on the fingers.

Species.

- | | |
|-----------------------------|------------------------|
| 1. <i>Typhus mitior,</i> | The low nervous fever. |
| 2. <i>Typhus gravior,</i> | The putrid fever. |
| 3. <i>Typhus icterodes?</i> | The yellow fever. |

TYPHUS MITIOR. NERVOUS FEVER.

SYMPTOMS.—General languor and lassitude; [with reluctance to motion;] dejection of mind; loss of appetite; alternate chilliness and flushing; dullness and confusion of thought; in a few days giddiness and pain in the head, with aching pains over the body; nausea and vomiting; short, anxious respiration: frequent, weak, and often intermittent pulse; at first the tongue is moist and covered with a whitish mucus, but afterwards becomes dry, brown, and tremulous; there is little thirst; the urine is pale and watery; low, muttering delirium, arising from the torpid state of the sensorium, inducing indistinct or ill-associated ideas.

As the disease advances, the heat often becomes very great, rising several degrees above the healthy standard; the tongue dry and brown or morbidly red; [drowsiness, frightful dreams, eyes contorted, answers slowly given; delirium, from a determination of blood to the head, indicated by the suffused redness of the eyes, the flushed countenance, the throbbing of the temporal arteries; pulse intermittent or irregular;] scanty, high coloured, and fetid urine; sometimes a disposition to immoderate sweating; diarrhoea; subsultus tendinum, coma, involuntary excretions, cold extremities, convulsions, death.

CAUSES.—*Predisposing.*—Weak and delicate habit of body, accompanied with much sensibility and irritability; studious and sedentary life; depressing passions of the mind; poor living; too free indulgence in the use of enervating liquors; excess in venery; profuse evacuations; warmth of climate, cold and wet seasons.

Exciting.—Intemperance; exposure to cold united with moisture; grief, fear, anxiety: those causes which in constitutions so predisposed would induce synocha; contagion.

DIAGNOSIS.—*From typhus gravior.*—At the commencement, by the attack being more gradual, and the symptoms much more mild. (vide Typhus gravior).—In the progress of the disease, by the absence of those symptoms of putrescency enumerated in typhus gravior, and by its being accompanied by less heat and thirst, less frequency of pulse, and no bilious vomitings.

PROGNOSIS.—*Favourable Symptoms.*—About the seventh, fourteenth, or twenty-first day, the tongue peeling and becoming moist, first at its edges, afterwards on its surface; a moisture breaking out upon the skin; a gentle diarrhœa; salivation, (not unfrequently accompanied with aphthæ, which, if they be of a light colour, are not unfavourable, and the contrary;) the pulse becoming fuller and more slow; the cessation of delirium, with some return of sleep and appetite; the appearance of scabby eruptions about the mouth, or of phlegmonous tumours in different parts of the body; the urine increasing in quantity, and depositing a sediment.

Unfavourable Circumstances.—All those indicating extreme debility; as diminished energy of the brain, marked by a continued state of insensibility or confusion of intellects, with low muttering delirium; muscular debility, indicated by the presence of convulsions, subsultus tendinum, tremulous motion of the lips, tongue, and other parts; impeded deglutition; by the patient lying prostrate on his back with extended arms, or insensibly gliding down to the bottom of the bed; falling of the lower jaw; involuntary evacuations; small, rapid, intermittent pulse; hiccup; partial sweating about the breast and head; a peculiar yet indescribable expression of anguish in the countenance; picking of the bed-clothes; catching at imaginary objects in the air. [All these symptoms may occur, and recovery happen; but in general they are fatal.]

Morbid Appearances.—[In simple or mild typhus there is no morbid alteration discoverable on necrotomic examination; but in complicated cases, there is often disease in the head, chest, or abdomen.]

TREATMENT.—*Indications.*—I. To excite a new and general action in the system, and thereby to check or moderate the effects of the morbid impression made by the cause of the disease.

II. To support the strength of the patient, where the fulfilment of the first indication has been found impracticable.

The *first indication* is to be attempted by the operation of an

emetic administered at the commencement of the disease—[a purgative is now generally preferred] ; by diaphoretics ; by cold affusion or ablution, which, it must be remembered, is admissible *only when the hot stage is fully formed ; when there is no sense of chilliness present ; when the heat of the surface of the body is steadily above the natural standard*, [which is to be ascertained by a thermometer, when convenient ;] and when there is *no general or profuse perspiration*. For this purpose sea-water or very dilute acetic acid, in the proportion of one pint of common vinegar to five of water, may be used. Or the body may be sponged with the following lotion :

R. Aquæ Puræ f ʒxxx ; Acidi Muriatici ; Acidi Nitrici, aa f ʒij : Misce pro lotionē subinde applicanda. [Chlorurets of soda and lime are also used.—See Typhus Gravior.]

[Free ventilation is one of the best modes of applying cold.]

The practice of taking away blood in cases of pure typhus is highly improper, and often productive of many bad consequences. It is very likely that the cases said to be benefited by it were cases of synochus or mixed fever.—See Synochus Ictericus. Typhus gravior, and Synochus, with cerebral, thoracic, and abdominal inflammation.

[PULVIS EMETICUS COMMUNIS.]

A common Emetic Powder.

R. Pulveris Ipecacuanhæ gr. xv ; Antimonii Tartarizati, gr. i : Fiat pulvis ex paucillo alicujus liquoris idonei hauriatur ; et vomitū moto, superbibantur cyathi aliquot infusi anthemidis tepidi ; vel aquæ calidæ.

Or,

HAUSTUS EMETICUS COMMUNIS.

A common Emetic Draught.

R. Pulveris Ipecacuanhæ gr. xv ; Antimonii Tartarizati gr. i ; Aquæ Menthæ Viridis f ʒxij ; Syrupi croci f ʒj : Fiat haustus emeticus.]

Or,

R. Liquoris Antimonii Tartarizati ʒj ; Magnesiæ Sulphatis ʒj ; Aquæ Menthæ Viridis f ʒvss ; Syrupi aurantii f ʒs : Fiat mistura, de qua capiat æger cochlearia tria magna horis alternis donec adsit catharsis vel emesis.

The diaphoretics which occasionally check this fever at the beginning are,

R. Liquoris Ammoniac Acetatis f ʒij ; Misturæ Camphoræ f ʒxij ; Liquoris Antimonii Tartarizati m xx ; Syrupi Croci f ʒj : Fiat haustus diaphoreticus quartis horis sumendus.

R. Liquoris Ammoniac Acetatis f ʒiii ; Pulveris Ipecacuanhæ

Compositi gr. ijss ; Pulveris Tragaeanthæ Compositi gr. viij ; Misturæ Camphoræ f̄3x ; Syrupi Aurantii f̄3j : Misce pro haustu singulâ quartâ horâ sumendo.

R. Pulveris Antimonialis gr. iv ; Pulveris Tragacanthæ Compositi gr. xv ; Spiritus Ætheris Nitrici f̄3j ; Misturæ Camphoræ f̄3xij ; Syrupi Papaveris f̄3j : Fiat haustus quartâ quaque horâ sumendus.

R. Pulveris Antimonialis gr. iv—viij ; Pulveris Contrayervæ 3j : Fiat pulvis quartâ vel sextâ quaque horâ ex syrupo deglutiendus.

The *second indication* requires the exhibition of tonics, previous to which, if the skin be hot and dry, the tongue dry and crusted, the pulse hard, and the bowels constipated, mild aperients and gentle cordial diaphoretics should be given.

R. Pulveris Rhei 3j ; Potassæ Supertartratis 3j ; Pulveris Cinnamomi Compositi gr. v : Fiat pulvis aperiens.

R. Potassæ Tartratis 3j ; Pulveris Rhei gr. x ; Infusi Sennæ f̄3xij ; Syrupi Aurantii ; Tincturæ Cardamomi Compositæ, aa f̄3j : Misce pro haustu aperiente.

R. Pulveris Rhei gr. xij ; [Pulveris Cinnamomi Compositi gr. v ;] Hydrargyri Submuriatis gr. iij : Fiat pulvis aperiens, ex pauxillo mellis capiendus.

R. Hydrargyri Submuriatis gr. v : Fiat pulvis, pro re nata, sumendus ex syrupo vel melle.

R. Extracti Colocynthis Compositi gr. vj ; Hydrargyri Submuriatis gr. iij : Fiat bolus aperiens, vel sint pilulæ duæ.

R. Pulveris Ipecacuanhæ Compositi gr. v : Fiat pulvis diaphoreticus sextâ quaque horâ sumendus, ex haustu salino communi.

R. Misturæ Camphoræ f̄3xij ; Liquoris Ammoniae Acetatis f̄3ij ; Spiritus Ammoniae Compositi m. xx ; Syrupi Aurantii f̄3j : Fiat haustus sextâ quaque horâ potandus.

R. Misturæ Camphoræ f̄3xij ; Liquoris Antimonii Tartarizati m. xx ; Spiritus Ætheris Nitrici f̄3j ; Syrupi Rhæados f̄3j : Fiat haustus sextâ quaque horâ ebibendus.

MISTURA CAMPHORÆ FORTIOR.

The strong Camphor Mixture.

R. Camphoræ gr. xxv ; Amygdalas dulces decortieatas sex ; Sacchari purificati 3ij ; optime contere, dein adde gradatim Aquæ Menthæ Viridis f̄3vijss : Ut fiat mistura.

Or,

R. Camphoræ gr. xxv ; Spiritus rectificati m. v : Fiat terendo pulvis ; dein adde Pulveris Acaciæ 3iv ; Syrupi Limonis, f̄3ss ; Aquæ Menthæ Viridis f̄3vij : Ut fiat emulsio :—sit dosis cochlearia tria magna.

When the object is to administer camphor which in many cases of febrile action, allays irritation, promotes perspiration, and induces

sleep, one of these mixtures should be administered, and not the *Mistura Camphoræ* of the *Pharmacopœia*, which contains a very small quantity of the drug, and is better calculated for the vehicle of medicines, than to effect any change in the actions of the system. [The addition of $\overline{5}$ iv. of carbonate of magnesia, as recommended in the *Dublin Pharmacopœia*, is a decided improvement, and honey sweetens the mixture best.]

R. *Camphoræ* gr. iv ; *Pulveris Antimonialis* gr. iij ; *Mucilaginis Acaciæ* q. s : *Fiat bolus sextâ quaque horâ adhibendus.*

One or other of these remedies being premised, and a gentle diaphoresis resulting, then tonics—quinine, cinchona, cascarilla, cusparia, calumba, serpentaria virginiana ; acids—acidum sulphuricum, nitricum, muriaticum, &c. ; wine—red-Port, Madeira, Sherry ; antispasmodics—camphor, moschus, castoreum ; æthers—spiritus ætheris sulphurici compositi, spiritus ætheris nitrici ; the affusion of cold water under the restrictions before mentioned.

R. *Decocti Cinchonæ* \overline{f} 3xij ; *Acidi Sulphurici diluti* m. x ; *Syrupi Rosæ* \overline{f} 7j ; *Tincturæ Cardamomi Compositæ* \overline{f} 7j : *Fiat haustus quartâ quaque horâ sumendus.*

R. *Decocti Cinchonæ* \overline{f} 3xij ; *Tincturæ ejusdem* \overline{f} 7js ; *Syrupi Aurantii* \overline{f} 7j ; *Spiritus Ætheris Nitrici* \overline{f} 7ss : *Fiat haustus quartis horis sumendus.*

[The sulphate of quinine is now generally used in preference to any other preparation of Cinchona, and may be prescribed as follows :

R. *Quinina Sulphatis* gr. ij ; *Infusi Rosæ* $\overline{5}$ xij : *Fiat haustus quartis vel quintis horis bibendus.*

Or,

R. *Vini Maderæ generosi* Oss ; *Quinina Sulphatis* gr. vj—viij : *Fiat mistura, cujus sumatur cochleare amplum secundâ vel tertiâ quaque horâ.]*

R. *Infusi Cascarillæ* \overline{f} 3xij ; *Tincturæ ejusdem*, \overline{f} 7ij ; *Syrupi Aurantii* \overline{f} 7j : *Fiat haustus quartâ quaque horâ deglutiendus.*

R. *Radiciis Serpentariæ contusæ* $\overline{5}$ ss ; *Corticis Cascarillæ contusæ* $\overline{5}$ ij ; *Aquæ Ferventis* Oj : *Macera in vase clauso per horam, dein cola.*

R. *Hujus colaturæ* \overline{f} 7xiiij ; *Tincturæ Aurantii* \overline{f} 7jss ; *Syrupi Aurantii* \overline{f} 7j : *Misce pro haustu quartâ quaque horâ capiendo.*

R. *Decocti Cuspariæ* \overline{f} 7xiv ; *Tincturæ Cinchonæ Compositæ* \overline{f} 7j ; *Confectionis Aromaticæ* ʒj ; *Syrupi Aurantii* \overline{f} 7j : *Fiat haustus quartis horis hauriendus.*

As the disease advances, the strength must be supported by dilute wine with sago, arrow-root, tapioca, and the like ; recent subacid fruits may be given, and light preparations of animal food, if there be no symptoms of putrescency, such as calf-foot jelly, veal or chicken broth, beef-tea, &c. [*Tous les mois* is an aliment, first used in this country by myself. See *London Medical and Surgical Journal*, vol. ii. 1836, August; and by Dr. James Johnson, see

Medico-Chirurgical Rev., Oct. 1836, and is preferable to arrow-root, sago, and other farinaceous substances in acute and chronic diseases.]

Sleep should be procured by mild opiates, with some diaphoretic, as the syrupus papaveris, opium, or nithridatum, morphia, the sedative solution of opium, Lancaster black drop, &c. For the composition of these see *New Practical Formulary of Hospitals*.

R. Mithridati ʒj; Misturæ Camphoræ fʒxiiij; Liqueoris Antimonii Tartarizati m. xx; Syrupi Rosæ fʒj; Misce pro haustu, horâ somni sumendo.

R. Tincturæ Opii m. xx; Misturæ Camphoræ fʒxiiij; Spiritus Ætheris Nitrici, Syrupi Rhaados, aa fʒj; Fiat haustus opiatns.

From xv—xxx m. of the solution of muriate of morphia in a draught.

Or,

[R. Aquæ Menthæ Piperitæ ʒi; Liqueoris Opii Sedativi m. xx.—xxv.; Syrupi Aurantii ʒiv; Fiat haustus horâ decubitus haerendus.]

R. Pulveris Antimonialis gr. iij; Pulveris Cornu usti cum Opio gr. x.; Fiat pulvis opiatns, horâ somni, ex syrupo, deglutendus.

If there be delirium arising from a determination of blood to the head, as indicated by a suffused redness of the eyes, dilated pupil, and inordinate sensibility and irritability, let the following lotion be applied to the head:

R. Spiritus Ætheris Sulphurici fʒss; Acidi Acetici fʒij; Misturæ Camphoræ fʒxiiij; Fiat lotio temporibus frequenter applicanda.

Or,

R. Camphoræ gr. x; Aceti Communis fʒij; Aquæ destillatæ fʒxiv; Fiat lotio frigide capiti raso applicanda.

If it be not relieved by these means,

Impouatur, nuchæ capitis, vel suris externis, emplastrum lyttæ.

Cataplasmata ex farina seminum lini pedibus impouenda.

Vel,

R. Pulveris Seminum Lini; Pulveris Seminum Avenæ, aa ʒvj; Pulveris Seminum Sinapis ʒj; Aceti ferventis q. s.; Fiant cataplasmata duo, pedibus admovenda.

[Should these measures fail, we should pour cold water on the head from a ewer applied close to the part, and gradually raised to the height of three or four feet. This is called the cold dash, and will often succeed when local and general bleeding have failed. It may be repeated until quiet or somnolence is produced.—(See Synochus.)]

If there be the low muttering delirium, or incoherence of ideas above mentioned, opium, musk, camphor, and blisters to the head, nape of the neck, between the shoulders, or to the inner side of the legs.]

Six drops of laudanum may be added to each tonic draught; or a proportional dose of the Pulvis Cornu usti cum Opio, or Confectio Opii.

R. Misturæ Moschi fʒvj; Tincturæ Cardamomi Compositæ fʒj; Fiat mistura, cujus sumat æger cochlearia duo magna secunduâ horis

R. *Misturæ Moschi* $f\bar{3}vij$; *Spiritus Ætheris Sulphurici Compositi* $f\bar{3}ij$; *Syrupi Rosæ* $f\bar{3}ij$: *Fiat julapium*, de quo capiat æger cochleare magnum subinde.

R. *Misturæ Moschi*; *Misturæ Camphoræ Fortioris*, aa $f\bar{3}ij$; *Spiritus Ætheris Nitrici* $f\bar{3}ij$; *Syrupi Rhæados* $f\bar{3}ss$: *Fiat mistura*, ejus sumantur cochlearia duo magna tertiâ quaque horâ.

A diarrhœa, not critical, should be checked by the exhibition of opium, of ipecacuanha in small doses, alone, or joined with opium; by cordials, astringents; catechu, kino, extract of logwood. (See *Diarrhœa*.)

R. *Pulveris Cornu usti cum Opio* $\bar{3}ss$; *Pulveris Ipecacuanhæ* gr. j: *Fiat pulvis octavis horis sumendus*.

R. *Misturæ Cretæ* $f\bar{3}vij$; *Vini Ipecacuanhæ* $f\bar{3}jss$; *Tincturæ Zingiberis* $f\bar{3}ss$; *Tincturæ Opii* $f\bar{3}ss$; *Syrupi Papaveris* $f\bar{3}ss$: *Fiat mistura*.

R. *Misturæ Cretæ* $f\bar{3}vij$; *Confectionis aromaticæ* $f\bar{3}jss$; *Tincturæ Opii* m. xxx: *Fiat mistura*.

R. *Misturæ Cretæ* $f\bar{3}vij$; *Confectionis Opii* $\bar{3}j$: *Fiat mistura*.

R. *Misturæ Cretæ* $f\bar{3}vj$; *Tincturæ Cardamomi Compositæ* $f\bar{3}j$; *Syrupi Zingiberis* $f\bar{3}ss$; *Pulveris Ipecacuanhæ Compositi* gr. xv: *Fiat mistura*.

R. *Electuarii Catechu Pharm. Edinb.* $\bar{3}ij$; *Decocti Cuspariæ* $f\bar{3}vij$; *Tincturæ ejusdem* $f\bar{3}ij$: *Fiat mistura*.

Three table-spoonsful of any of the above mixtures may be given every two, three, or four hours, or after every purging stool, and the opium increased if necessary.

[An ounce of syrup should be added to each of the above, in which this ingredient is omitted.]

Mulled red-port wine, or pure port wine, or dilute brandy, should be frequently administered. [Madeira and sherry are equally good.]

Profuse sweats are to be restrained by acidulated drinks, and by the use of vegetable and mineral acids.

R. *Misturæ Camphoræ Fortioris* $f\bar{3}vij$; *Acidi Sulphurici Diluti* $f\bar{3}jss$; [*Syrupi glycyrrhiæ* $\bar{3}vss$:] *Fiat mistura*, ejus capiat æger cochlearia tria subinde.

R. *Infusi Rosæ* $f\bar{3}vj$; *Vini Rubri* $f\bar{3}ij$: *Misce pro potu ordinario*.

Should the extremities become cold, direct sinapisms to the feet, blisters to the inside of the legs above the ancles, and give camphor and æther.

R. *Misturæ Camphoræ Fortioris* $f\bar{3}vij$; *Spiritus Ætheris Sulphurici Compositi* $f\bar{3}ij$: *Fiat mistura*, ejus sumantur cochlearia duo magna in horas.

TYPHUS GRAVIOR.—PUTRID FEVER.

SYMPTOMS.—The attack of this disease is much more sudden than that of the preceding, and its progress more violent and rapid;

the rigors are extremely severe; the prostration of strength greater and more early, and the expression of anguish and horror more acute; the heat of the skin is often moderate, though in some instances it soon rises to a degree greater than in any other fever, to 108 degrees of Fahrenheit, and is peculiarly acrid and burning to the touch; the pulse is frequent, small, and sometimes possesses considerable hardness; nausea and bilious vomiting; intense pain in the head; tinnitus aurium, singing in the ears; preternatural throbbing of the temporal and carotid arteries; ferrety redness of the eyes; extreme anxiety; ferocious delirium; the tongue is dry and covered with a brown or black crust; the breath is hot and offensive; fœtid sordes accumulate about the teeth and lips; the urine, at first pale, then becomes extremely high-coloured and fœtid, and in the last stage of the disease often deposits a dark or black sediment.

In the advanced stages hæmorrhages break out from the different parts of the body; blood is effused under the skin, forming petechiæ, maculæ, and vibices. The excretions become involuntary, and extremely offensive: [the feces become black, the urine passed in bed, or retained; the features are changed and sharpened; there is great prostration of strength, difficult deglutition and respiration;]—gangrenous aphthæ appear about the mouth and throat; the pulse sinks, and intermits; the extremities grow cold; [and covered with a viscid cold sweat;] hiccup ensues; and before dissolution the patient exhibits a most complicated scene of misery.

[*Morbid appearances.*—Putrefaction rapidly advancing, mucous membrane of the lungs and intestinal canal softened or gorged with a thin black blood. Results of inflammation in some cases observable in the head, chest, and abdomen; in other instances there is no disorganization apparent, but a rapid tendency to decomposition of the viscera and other parts of the body.]

CAUSES.—*Predisposing.*—All those causes inducing debility already enumerated under typhus mitior; want of cleanliness; confined air; close and humid state of the atmosphere.

Exciting.—Contagion is mostly the exciting cause, applied either immediately from the body of a person labouring under the same fever, or conveyed by the wind, in clothes, or merchandise, &c.

[Many eminent moderns deny that this disease is contagious; and we know that it may arise from various other causes besides contagion. It is seldom observed in London, though common in Dublin and Edinburgh. Some deny that the disease is seen in its idiopathic form as described above. It is the adynamic, ataxic, or asthenic fever of some writers. It may supervene after local inflammation of any part of the body.]

MM. Gaspar and Magendie caused all the symptoms of typhus by injecting putrid matter into the veins of animals; and the more concentrated was the poison the more violent the fever, and the local inflammation which succeeded it. Typhus also supervenes on

all deep-seated inflammations, in severe burns, wounds, fractures, phlebitis, dissection wounds, local injuries and eruptive fevers.]

DIAGNOSIS.—*From typhus mitior.*—Vide Typhus mitior.

From synocha.—By the sudden and great prostration of strength which ensues on its first attack ; by the constitution of the patient ; by the brown or black tongue ; the livid flush of the countenance ; the black and fetid sordes about the teeth ; the less degree of strength, yet greater frequency and hardness of pulse ; the acrid and more intense heat of the skin ; the symptoms of putrescency above-mentioned.

PROGNOSIS.—*Favourable.*—The countenance preserving nearly its natural state, the look firm and clear, and the face not emaciated. A crisis accompanied with any of the symptoms mentioned under typhus mitior ; an abatement of febrile heat and thirst ; a gentle, warm moisture diffused equally over the whole surface of the body, succeeded by a rising of the pulse ; the absence of delirium and stupor ; the prostration of strength not great ; the petechiæ or hæmorrhages being of a florid red colour.

Unfavourable.—In addition to those already enumerated as marking extreme debility in typhus mitior, the peculiar appearance of the patient ; his eyes inflamed and staring, his speech quick, the sound of his voice altered ; extreme anxiety and perpetual watchfulness ; increased vascular action and diminished muscular power ; high delirium ; loss of sight ; dry, black tongue ; nausea, or constant vomiting ; fetid and involuntary excretions ; passive hæmorrhages ; dark-coloured, livid, petechial eruptions ; yellowness of the skin ; tension of the abdomen ; black and gangrenous aphthæ, gangrene of blistered places ; partial cold and clammy sweats ; cadaverous smell of the whole body.

[*Critical days.*—It has been long observed that all fevers, intermittent, remittent, and continued, assume the quotidian, tertian, and quartan types, and hence referred to one genus. Hence it has been remarked by the ancient physicians, that fevers terminated on certain days, as the third, fifth, seventh, ninth, eleventh, fourteenth, seventeenth, twentieth, or twenty-first, and these were called *critical days*. Many deny this doctrine, but some maintain it. I have known a few nurses predicate a critical change with perfect accuracy ; but in most cases it is not observable. Perhaps the fevers described by the ancients were different from those now observed ; and, indeed, it must be admitted that the type of fever is constantly modified by epidemic influence.]

TREATMENT.—*Indications.*—I. To moderate the excessive febrile action, and to support the strength of the patient.

II. To obviate the putrid tendency in the fluids.

The *first indication* requires the means recommended for the cure of the preceding disease ; great reliance is placed by some practitioners on the frequent ablution with cold water and vinegar, employed under the restrictions there mentioned. Much

benefit has been derived from the use of the Spiritus Ætheris Sulphurici Compositus.

R. Spiritus Ætheris Sulphurici Compositi $f\overline{5}ij$; Misturæ Camphoræ $f\overline{5}viiss$; [Syrupi Aurantii $\overline{5}ss$:] Fiat mistura, cujus capiat æger cochlearia ij , magna tertiâ quaque horâ.

R. Spiritus Ætheris Sulphurici Compositi $f\overline{5}ij$; Misturæ Camphoræ Fortioris $f\overline{5}vij$; [Syrupi Croci $\overline{5}v$:] Fiat mistura, cujus capiat æger cochlearia tria magna tertiâ quaque horâ.

The *second indication* is partly answered by fulfilling the first; by the utmost cleanliness [removal of excretions as soon as evacuated]; frequent change of linen; ventilating and fumigating the apartment of the patient; frequently sprinkling the room with vinegar or camphorated spirits [or a solution of chloride of lime or soda]; the use of acid and acescent fruits, such as currants, grapes, oranges, roast apples, &c.

The exhibition of antiseptics, especially cinchona, in combination with acids:

R. Decocti Cinchonæ $f\overline{5}xij$; Tincturæ Cinchonæ $f\overline{5}ij$; Acidi Sulphurici Diluti $m. x$; Syrupi Aurantii $f\overline{5}j$: Fiat haustus.

R. Decocti Cinchonæ $f\overline{5}xij$; Tincturæ ejusdem $f\overline{5}jss$; Acidi Muriatici $m. ij$; Syrupi Aurantii $f\overline{5}j$: Fiat haustus.

R. Decocti Cinchonæ $f\overline{5}xij$; Tincturæ ejusdem $f\overline{5}jss$; Acidi Nitrici Diluti $m. viij$; Syrupi Aurantii $f\overline{5}j$: Fiat haustus.

R. Extracti Cinchonæ mollis $\overline{5}ss$; Decocti Cinchonæ $f\overline{5}xij$; Tincturæ ejusdem $f\overline{5}ij$; Acidi Muriatici $m. ij$; Syrupi Aurantii $f\overline{5}j$: Fiat haustus.

One of these draughts to be taken every two, three, or four hours.

[Quinine is now generally preferred to cinchona, and may be given daily to the amount of twenty-four grains in bad cases. See p. 82.]

R. Inf. Calumbæ $\overline{5}iss$; Acidi Mur. $m. x$; T. opii $m. iv$: 4 horis.

R. Quininæ Sulphatis $gr. ij$; Acidi Sulphurici diluti $m. ij$; Aquæ destillatæ $\overline{5}i$; Syrupi Croci $\overline{5}iv$: Fiat haustus secundus, tertiis, vel quartis, horis exhibendus.]

The decoction of cusparia, quercus, serpentaria, or casearilla may be used, made in the same way as the decoction of the cinchona, and employed in the same dose, combined with tincture and acid.

The intestinal canal should be assiduously cleared from any accumulated feces, by the occasional use of gentle laxatives, as rhubarb and cream of tartar, submuriate of mercury, and mild clysters [especially at the commencement and stage of excitement of the disease. When the stage of collapse commences, purgation ought to be avoided.]

R. Aceti communis $f\overline{5}ij$; Infusi Anthemidis $f\overline{5}v$: Misce pro enemate.

R. Sodæ Muriatis $\overline{3}$ ss; Aceti communis $\overline{f}\overline{3}$ ij; Infusi Anthemidis $\overline{f}\overline{3}$ vj: Fiat enema.

R. Potassæ Nitratis $\overline{3}$ ij; Aceti communis $\overline{f}\overline{3}$ ss; Infusi Anthemidis $\overline{f}\overline{3}$ vj: Fiat enema.

Phosphorus dissolved in æther or oil, and made into an emulsion with mucilage of acacia-gum, has been employed with beneficial effect in the last stages of typhus by Drs. Mentz, Wolff, Leroy, and others; but the difficulty of obtaining and mixing it, and the great caution that is requisite in the exhibition, are such as to prevent its general use; and it should never be given but under the direction of the most experienced and skilful.

R. Phosphori gr. iv; Olei Amygdalæ $\overline{f}\overline{3}$ j: Solve.

R. Hujus Olei Phosphorati *m.* vj; Mucilaginis Acaciæ $\overline{f}\overline{3}$ ij; Aquæ Cinnamomi $\overline{f}\overline{3}$ vj: Fiat haustus, singula vel secundâ, vel tertiâ quaque horâ adhibendus.

If aphthæ appear, the gargles recommended for cynanche maligna may be employed. (See Cynanche Maligna.)

Should hæmorrhages arise—the acidulated infusion of roses, in addition to other antiseptics; but more especially the oxygenated muriatic acid, [or what is still better is the acetate, with the liquor opii sedativus, or the acetum opii of the Dublin Pharmacopœia.] (See Hæmoptysis.)

R. Acidi Oxymuriatici *m.* xx; Decocti Cinchonæ $\overline{f}\overline{3}$ xij; Tincturæ ejusdem Compositæ; Syrupi Aurantii $\overline{a}\overline{a}$ $\overline{f}\overline{3}$ j: Fiat haustus tertiâ quaque horâ sumendus.

When the oxygenated muriatic acid is not at hand, one minim of the muriatic and as much nitric acid may be substituted.

[In some cases there are great prostration of strength and stupor from the invasion of the disease, which obscure local affections, and generally terminate in death. In the disease called yellow fever of the west, the abdominal viscera are affected; in the fever of the east, or plague, the axillary and inguinal glands are inflamed, and buboes form and suppurate.

When there is profound prostration from the onset of typhus, the muscular power is greatly diminished, the pulse is small, feeble, soft, and easily stopped by pressure, and the respiration is hurried, laborious, or difficult; it is necessary to sustain the powers of life by stimulants, as ammonia, wine, quinine, cinchona, with the solutions of the chlorides of soda or lime, taken internally, sponging the body with these liquids, friction with aromatic tinctures together with clysters, of the above substances, are the principal means of cure.* Sinapisms are preferable to blisters in this form of the disease, as gangrene often follows the employment of the latter. It

* As the chloride of lime has no place in our Pharmacopœias, it is prudent to give its formulæ. Two table-spoonsful of this salt dissolved in a quart of water, or one part to sixty, is recommended

is therefore a bad practice to apply several blisters to a patient in the last stage of this fever; for example, to the head, neck, spine,

as a disinfecting agent to correct putrid and noxious vapours arising from water-closets, drains, confined apartments. A dessert-spoonful in a wine-glassful of water has been given two or three times a day, but a better formula is the following:—

R. Solutionis Calcis Chlorureti ʒi; Mueilaginis Acaciæ ʒij; Syrupi Aurantii ʒx: Fiat haustus secundâ vel tertiâ quaque horâ potandus.

Dr. Reid of Dublin has used this remedy in typhus and dysentery with advantage.—(*Trans. Dub. Coll. Phy.* v. 5.)

R. Decocti Hordei ʒx; Solutionis Calcis Chlorureti ʒiv: Fiat enema mane vespereque injiciendum.

The following is the formula for ablution or sponging the body:

R. Solutionis Calcis Chlorureti ʒj; Aquæ puræ ʒxij.

This lotion is also applied to gangrenous ulcers consequent on fevers or other tedious diseases; and also when they are idiopathic. If it causes pain, it ought to be diluted with water, or

R. Calcis Chlorureti pulveris ʒiv; Aquæ puræ Oiv.

As a gargle, a vaginal or rectal injection, the following formula is employed:—

R. Calcis Chlorureti pulveris ʒj; Aquæ rosæ Oj.

This chloride is preferable to that of soda, being less disagreeable for medicinal use, and it is also employed for other important purposes: but the latter is as often used.

For the purpose of disinfecting the chambers of the sick, to purify the air in hospitals, workhouses, prisons, ships, and crowded places, we sprinkle the floors occasionally with the diluted liquid, in the proportion of one part of chloride to sixty of water; expose it in dishes; moisten linen cloths in it, and suspend them in the apartment or place to be disinfected, renewing twice or thrice a-day, and let the fœtor regulate the frequency and strength; fresh air must be frequently admitted, or irritation or inflammation of the respiratory organs will be induced.

It is equally applicable in rooms or houses newly sized or painted, in kitchens or workshops where charcoal fires are kept, in manufactories, &c. where operations on animal substances are carried on.

To disinfect clothes, linen, &c., especially of patients infected with contagious disorders, bandages, lint, &c., we throw them into a solution of the liquid, and they may be withdrawn immediately completely disinfected; or the clothes may be hung in a closet with a quantity of the dilute solution placed in a shallow vessel. In cases of a malignant nature, the linen, &c. had better be allowed to remain in the liquor for three hours, and afterwards rinsed out in clear water.

and legs, at the same time, for if intended to rouse the vital powers, the application of warm turpentine will answer the purpose much better, and more speedily. In cases of collapse, we must not leave sinapisms applied to the feet longer than four, six, or eight hours, even though they seem to produce no apparent effect; but should recovery happen, ulceration may attack the parts to which the cataplasm has been applied, and gangrene may follow.

When the stage of excitement comes on about the fourth, fifth, or sixth day, some persons employ venesection to abridge or diminish it; but great caution is necessary in the use of depletion; and the brightest ornaments of the profession are of opinion that the abridgment or abatement of reaction cannot be effected by this remedy. A few maintain the opposite opinion. Venesection is useful in lowering reaction in inflammatory fever or synochus, but in the worst form of the disease under consideration, it cannot be employed with safety or advantage.

Opiates when improperly administered, augment thirst, heat, and general distress, parch the tongue, and suppress the secretions. It is doubtful whether morphia or the other sedative preparations of opium produce the effects just detailed. When opium is contra-indicated, we may substitute the black drop, one drop being equal to four of tinctura opii, or we may exhibit the tinctura hyosciami.

Night chairs, or any vessels in which putrid animal or vegetable matter has been kept, should be rinsed out with a little of the solution, and, when in use, one glassful poured into the chair or pan.

To disinfect dead bodies, and for the use of searchers, undertakers, and jurymen; and to protract the necessity of early interment in warm weather, or in cases of great personages lying in state, or to disinfect bodies for the purposes of judiciary investigations, the body should be washed occasionally with the solution, and it will retard putrefaction. Sprinkle the floor often. Sprinkle the shroud with about one quarter of a pint of the fluid, or lay a slightly moistened cloth upon the body within the coffin, according to the heat of the weather, &c.; or surround the corpse with a sheet well moistened with the solution, and renew the moistening frequently.

To disinfect sewers, drains, cesspools, water-closets, &c., a quantity of clean water should be first thrown into the offensive place, and then a pailful of the diluted solution, one pint to two pailful. If not successful, repeat the application after ten minutes. In emptying very dangerous sewers, place a pailful by each workman; wash the nostrils occasionally, or moisten a sponge with the liquid, and let it be fixed near the mouth and nostrils. Sprinkle the soil as fast as thrown from stage to stage.—*Edit.*

R. Aquæ Cinnamomi ʒj; Tincturæ Hyoscyami *m.* xxx: Syrupi simplicis ʒiv: Fiat haustus.

When opiates increase cerebral disturbance, delirium, induce flushing of the countenance, dry tongue, and constipation, they should be discontinued. When these effects are produced by quinine or cinchona, either must be abandoned. Antimony has once more become a favourite remedy in fever; and its having fallen into disuse may be fairly ascribed to its failure in consequence of adulteration.

Wine is now seldom employed unless in the lowest type of fever, or in the stage of collapse, when it will be a most valuable remedy. Like antimony, it has been condemned, in consequence of the absurd and erroneous notion that pure typhus is seldom seen, and, that it is generally combined with inflammation in the head, chest, or abdomen. When the skin becomes hot, the tongue dry, the pulse quicker, the breathing hurried, the face flushed, wine is prejudicial. If, on the contrary, there is less restlessness, a tendency to sleep, the countenance more placid, the tongue moist, the pulse becoming fuller, the skin moderately warm, with a tendency to moisture, the respiration tranquil after the use of wine, then it has done good, and ought to be continued. In some cases the unlimited use of stimulants is indispensable and beneficial.

When symptoms of prostration set in about the twelfth or fifteenth day of the disease, and when there has been no sign of local inflammation present during the former period, we must employ diffusible stimulants, such as the following:—

R. Misturæ Camphoræ c. Magnesia ʒvj; Spiritus Ammonie Aromatici ʒiij; Quinine Sulphatis gr. vi; Olei Menthæ Piperitæ *m.* v; Syrupi glycyrrhizæ ʒj: Dosis cochleare amplum singulis, secundis, vel tertiis horis.

Or,

R. Misturæ Camphoræ c. Magnesia ʒvj; Carbonatis Ammonie ʒj-ʒj; Quinine Sulphatis gr. x-xx; Mellis optimi ʒj: Fiat mistura, cujus sumat cochleare amplum pro dosi secundâ quaque horâ.

In the last stage of this fever there is a gradual decline of the power of deglutition, and the patient can seldom take draughts, though he can swallow a table-spoonful with ease. In such cases, the muscles concerned in deglutition lose their power, and hence there will be less difficulty experienced in swallowing a table-spoonful than a tea-spoonful, as the latter will necessarily require more muscular exertion.

When diarrhœa supervenes, we must check it by ordinary astringents.

R. Misturæ Cretæ ʒvj; Tincturæ Catechu ʒiij; Confectionis Aromaticæ ʒj-ʒj; Tincturæ Opii ʒj; Syrupi Zingiberis ʒj; Olei Menthæ Piperitæ *m.* iv: Fiat mistura de quâ deglutietur cochleare

amplum post singulas sedes liquidas, vel singulis horis, donec alvus fiat astricta, vel supervenerit somnolentia.

Or,

R. Aquæ Cinnamomi $\bar{\zeta}v$; Confectionis Aromaticæ $\bar{\zeta}ij-iij$; Tincturæ Kino $\bar{\zeta}ij$; Extracti Hæmatoxyli $\bar{\zeta}j$; Liquoris Opii Sedativi $\bar{\zeta}ss$; Syrupi simplicis $\bar{\zeta}j$: Dosis cochleare amplum post singulam alvi dejectionem.

Clysters of starch and laudanum are useful, *m.* xxx- $\bar{\zeta}vj$.

When subsultus tendinum, tremors of the hands, involuntary evacuations, slipping down in the bed, and low muttering delirium supervene, we employ stimulants and anti-spasmodics.

R. Misturæ Camphoræ cum duplici Camphoræ quantitate $\bar{\zeta}viij$; Spiritûs Ætheris Sulphurici $\bar{\zeta}ij$; Tincturæ Opii $\bar{\zeta}ss$; Pulveris Moschi $\bar{\zeta}ss$; Spiritûs Ammoniac Aromatici $\bar{\zeta}ij$; Quininae Sulphatis $\bar{\zeta}ss-\bar{\zeta}j$: Fiat mistura in doses tres quatuorve partitur, et bihorii intervallo vel trihorii, pro ut urgeant symptomata, singula haurienda.

Or,

R. Camphoræ pulveris $\bar{\zeta}j$; Sacchari, vel Mellis $\bar{\zeta}j$; Aquæ ferventis $\bar{\zeta}viij$; Misturæ Moschi $\bar{\zeta}vj$; Spiritûs Ætheris Sulphurici $\bar{\zeta}ij$: Fiat mistura, cujus sumatur cochleare amplum secundâ vel tertiâ quaque horâ.

Sinapisins are also necessary in these cases.

R. Sinapis pulveris, Lini pulveris \bar{aa} $\bar{\zeta}viij$: Aceti calidi quantum sufficit, ut fiat cataplasma plantis pedum et montibus applicandum, per tres vel quatuor horas, dein auferendum.

When petechiæ, vibices, or maculæ appear, our chief dependence is placed on quinine, cinchona, and saline medicines. Formulæ for the first and second remedies are given in the treatment of Typhus mitior, p. 82, also p. 93.

MISTURA SALINA EFFERVESCENS.

Saline Effervescing Mixture.

R. Sodæ Subcarbonatis $\bar{\zeta}iv$; Aquæ Menthæ Viridis $\bar{\zeta}viij$; Sodæ Tartarizatae $\bar{\zeta}ij$; Syrupi simplicis $\bar{\zeta}j$: Fiat mistura, cujus dentur cochlearia duo ampla cum uno succi limonis recentis in actû effervescentiæ secundâ vel tertiâ quaque horâ.

Or,

R. Potassæ Subcarbonatis, $\bar{\zeta}j$; Aquæ Menthæ Piperitæ $\bar{\zeta}x$; Syrupi Aurantii $\bar{\zeta}ij$: Fiat haustus, cui tempore ebibendi adde, succi limonis recentis cochleare amplum unum, et in effervescentiâ exhibeatur.

Or,

R. Sodæ Subcarbonatis $\bar{\zeta}j$; Sodæ Tartarizatae $\bar{\zeta}j$; Aquæ Cinnamomi $\bar{\zeta}xj$; Syrupi Zingiberis $\bar{\zeta}j$: Fiat haustus cum cochleari amplo succi limonis in ipso actu effervescentiæ assumatur.

[These mixtures have long been administered during the first and second stages of fever as refrigerants; but, according to Dr. Stevens, they will prevent the dissolution of the blood in all fevers. He also advises muriate of soda, nitrate of potass, and tartarized soda for the same purpose; and during the epidemic cholera of 1832, the following formula, which some lauded, but most practitioners declared to be useless:—

R. Sodæ Muriatis $\overline{5}j$; Sodæ Carbonatis $\overline{3}j$; Potassæ Oxymuriatis gr. viij: Fiat pulvis, in aquæ cyatho omni quadrante horæ sumendus.

In two cases of purpura in children, a cure was effected by the use of the carbonate of soda saturated with lemon juice, and also in purpura hæmorrhagica.

When putrescency appears in fever, great reliance was placed, by the older physicians, on the infusion of malt, which was prepared as follows:—To a pint of wort, or infusion of malt, two table spoonsful of yeast and one of soft sugar were added; the vessel was covered and placed near the fire to promote fermentation, which soon took place. The scum was frequently removed, and the fluid administered in divided portions. I have found it a valuable remedy; it is generally relished, and acts as a mild aperient.*

The mineral acids, especially the diluted muriatic, carbonated liquids, with wine and cinchona, are of great value in this stage of typhus gravior.

R. Infusi Calumbæ $\overline{5}iiss$; Acidi Muriatici *m.* vj; Tincturæ Opii *m.* iv: Fiat haustus secundis vel tertiis horis exhibendus.

R. Aquæ Menthe Piperitæ $\overline{5}j$; Syrupi Aurantii $\overline{5}iv$; Acidi Muriatici, Acidi Nitrici, \overline{aa} *m.* ij: Fiat haustus.

R. Decocti Cinchonæ $\overline{5}xi$; Acidi Sulohurici diluti *m.* xij; Syrupi glycyrrhizæ $\overline{5}j$: Fiat haustus.

R. Aquæ destillatæ $\overline{5}x$; Acidi Nitrici diluti $\overline{5}ij$; Syrupi Aurantii $\overline{5}ij$: Misce pro potu ordinario.

These draughts are preferred to wine, ammonia, and quinine, by some writers.

Serpentaria, cascarilla, camphor, and the æthers, are also used in this last stage of typhus.

If the abdomen becomes tense and tympanitic from the secretion of gases, which is termed meteorization or meteorism, the assafetida enema, with the application of camphorated spirit to the abdominal surface, will often produce relief. We should add essential oils to any carminative medicine we employ at the same time. Some have advised large doses of quinine, and others oil of turpentine in moderate quantities, to stimulate the intestinal tube, or excite its muscular action, and thereby cause the expulsion of gas.

* Dr. Tuomy and Dr. Stoker, of Dublin, very strongly recommend this remedy in low typhus.—(See their works on Typhus.)

Dr. O'Beirne, of Dublin, has rendered science a lasting service as well as suffering humanity, by introducing a tube into the colon in tympanites, strangulated hernia, and inflation of the large intestines with gas in various diseases, by which means the offending aeriform fluid escapes, and life is preserved.—(See his work on Defecation, 1833, and his able reply to his Reviewers, read before the British Association for the advancement of Science, at their meeting in Dublin, 1835, which was published by me in the *London Medical and Surgical Journal*, Aug. and Sept. 1836, vol. ii.)—I can bear my testimony in favour of the efficacy of the tube in inflation of the intestinal canal in children and adolescents. When there is great prostration of strength in the advanced period of fever, the abdomen becomes suddenly distended with gas, the diaphragm cannot descend, the respiration becomes impeded, the action of the heart is greatly diminished; and under these circumstances a tube, mechanically passed into the large intestines, pressure being made at the same time on the abdomen, will often cause the expulsion of the gas, and when stimulants, both internal and external, are employed with judgment, preserve life.

When the symptoms improve, and a crisis takes place, it is necessary to administer the vegetable jellies, (*tous les mois*, see p. 82,) sago, arrow-root, tapioca, water-gruel; and after three or four days, small quantities of chicken-broth, beef and veal tea, and animal jellies. Should the latter excite the circulation, and produce constitutional disturbance, they should be omitted, or tried in smaller quantities. Custards, fresh fish, the breast of a chicken, turkey, or partridge, may be given about the sixth or eighth day; as also ale, porter, and a small quantity of wine at this time. A cautious use of tonics, quinine, calumba, cascarrilla, gentian, &c. is advisable during convalescence. The bowels should be kept open by some mild aperient.

Convalescence.—There is always great danger of relapse after the cessation of fever, and should this occur, it will be much more difficult to treat it than the primary attack. This must be obvious, when we remember the universal disturbance of all the functions during fever, and the profound debility caused by the disease. Relapses are produced by allowing the patient to rise too early from bed, or to indulge in the use of animal food, for which there is often a strong craving after the cessation of fever. When this is indulged, a relapse frequently takes place, and death will often follow in a few hours.

The patient should remain in bed for eight or ten days after the fever has entirely ceased, that is, during his convalescence; and he should not be allowed animal food, wine, fermented or spirituous liquors sooner than the eighth or tenth day, unless ordered by his medical attendant. In private practice, it is often impossible for the practitioner to guard against relapses, because as soon as convalescence is established, his visits are generally discontinued. He

is, however, often recalled to witness the death of one who a few days before was out of danger.

The patient should be removed during the day into another apartment, which will tend to dissipate the gloom of the sick chamber, and allow time to have the latter properly regulated and ventilated. He should not be allowed into the open air for a few days after his recovery, or until he is able to walk a little in his sitting-room. In consequence of the great excitability in the system after fever, it is highly improper to allow the convalescent into the open air when the weather is cold, damp, or windy, or when it is very hot, damp, or dusty. He should go out at first in a close carriage, and wear additional covering; but moderate exercise on foot is preferable, as it circulates the blood in every part of the body, and induces the action of the abdominal muscles on the intestines, stimulates the latter, and causes their evacuation—a desirable object, as constipation is a very frequent occurrence after recovery from any acute disease.

Other rules are to be observed, such as the avoidance of cold and damp, &c., as a temporary exposure or sitting in cold or moist places is highly injurious. He should take little drink at meals, masticate his food slowly and efficiently, avoid exercise and sleep soon after a repast.

When convalescence occurs in spring, winter, or cold weather, flannel should be worn next the skin, together with woollen stockings, and strong shoes or boots, with warm clothing. Convalescents should avoid venereal indulgence, and much reading; the first causes great debility, the second weakness of vision or short-sightedness, which is seldom curable.

When the hair falls off, which is frequently the case, it is not proper to shave the head until the patient is completely recovered. The infusion of box-wood is preventive of this species of alopecia.]

SYNOCHUS.—MIXED FEVER.

This is a compound of synocha and typhus. It commences with some of the symptoms of the former, and terminates in those of the latter. At first the pulse is strong and hard, the tongue white, the urine high-coloured; soon, however, the tongue becomes yellow, then brown; the pulse loses its strength, yet retains its hardness, and becomes more quick; prostration of strength supervenes; and the disease assumes the form of typhus mitior, or gravior, as certain predisponent circumstances of constitution, or cause, may happen to be present.

The usual and almost universal *cause* of this fever is cold; the morbid effects of which are promoted by its union with mois-

ture, or by a debilitated state of constitution however previously induced.*

The *treatment* has been already fully described. In the commencement, it will be that laid down for the cure of inflammatory fever: the utmost caution must however be employed in the use of those means which lower the tone of the system, especially bleeding, so that sufficient strength may be left to combat the succeeding stage, in which the treatment of typhus must be employed.

[There are several species of synochus, according as particular symptoms preponderate, as the bilious, verminous, &c.; or when there is cephalic, thoracic, or abdominal inflammation consequent on this disease.

It is now almost universally admitted, that continued fever is a general disorder or disease of the system not caused by local inflammation, though this is a frequent but not an invariable consequence. The phenomena of the first stage of this fever are exactly similar to those of an intermittent, but in a minor degree, and of longer duration. We observe a cold stage ushered in by rigor or shivering, languor, and lassitude, disinclination to make mental or corporeal exertion, loss of appetite, constipation, urine diminished, surface of the body cold and pale, pulse smaller and weaker than in health, more or less head-ache, obtuse pain in the back or limbs as after fatigue, all which symptoms depend upon a diminished energy of the sensorial and nervous power, and clearly prove that the cerebro-spinal, or brain and nervous system are deranged; and hence most writers maintain that the brain and nervous system are primarily affected in all idiopathic fevers. These symptoms may continue for three or four days, and constitute the first stage or period of debility; and now the system rallies, the *vis medicatrix nature*, or inherent power in the system to remove or combat all diseases, is exerted, and the state of reaction or excitement is induced, which may continue from the fifth or sixth to the twelfth or fourteenth day. During this period all the functions of the body are excited, the sensorial powers are active, there is increased head-ache, intolerance of light and sound, great restlessness and irritability, flushed face, rapid pulse, hot skin, great thirst, &c. This state corresponds to the hot stage of an intermittent, but is of longer duration; and the hurried circulation may induce congestion or inflammation in any part of the body predisposed to disease, and especially in the vascular organs, as the brain, lungs, liver, and abdominal viscera, the gastro-intestinal mucous membrane, spleen, kidneys, and uterus. Congestion or in-

[* It is remarkable that Cullen designates synocha a non-contagious disease, and yet maintains that it may terminate in typhus, a contagious disease. This accords with the modern opinion, that a non-contagious disease may become contagious under certain circumstances, which is absurd.]

flammation is therefore the consequence and not the cause of fever.* Daily observation incontrovertibly proves that fever may go through its whole course without inducing local inflammation, though this is a frequent complication. Inflammation will appear in different organs according to the predisposition of the patient; it will attack the brain in one, the lungs in another, the digestive system in a third, and so on. It often steals on imperceptibly, though in general it is well marked. The brain is most commonly affected, next the respiratory organs, and lastly, the digestive. The complication of fever with local inflammation of vital organs renders the disease highly dangerous, and the treatment extremely difficult.

[Fever is not equally common at all ages, as appears by the following table drawn up by M. Lermnier at La Charité, during the year 1822:—Age of the patients, from fifteen years, one; from sixteen to twenty, sixty-seven; twenty to thirty-five, ninety-nine; twenty-five to thirty, twenty-nine; thirty to thirty-five, ten; thirty-five to forty, four; forty to forty-five, seven; forty-five to fifty, none; fifty to fifty-five, seven; fifty-nine, one; sixty-four, one; sixty-five, one; seventy-one, one.

The mortality of fever in the London Fever Hospital, given by Dr. Tweedie, from September 1st, 1828, to September 1st, 1829, is one in seven one sevenths; but it is right to state, that of three fatal cases, there died within twenty-four hours after admission, five; within thirty hours, five; thirty-six hours, nine; forty-eight hours, three; within three days, eight; four days, three; five days, ten; six days, fifteen; seven days, three; beyond this period, twenty-two; in all, seventy-three.

The following are the results of the mortality of fever at different ages, deduced from five hundred fatal cases:—Under ten years, fourteen; between ten and fifteen, forty; fifteen and twenty, one hundred and eighteen; twenty and twenty-five, eighty-four; twenty-five and thirty, seventy-three; thirty and thirty-five, twenty-five; thirty-five and forty, thirty-nine; forty and forty-five, thirty; forty-five and fifty, twenty-nine; fifty and fifty-five, fourteen; fifty-five and sixty, twelve; sixty and sixty-five, six; sixty-five and seventy, nine; seventy and seventy-five, five; seventy-five and eighty, two: in all, five hundred.

* The immediate cause of fever is supposed to be an unknown poison which primarily acts upon the brain and nervous system, which deprives them of the power of communicating to the body that supply of nervous and sensorial energy which is necessary to maintain the secretions in health; all the organs become deranged, in the order of their importance to the animal economy, the circulatory, respiratory, digestive, nutritive, muscular, secretory, and generative.

The mortality somewhat differs in England, Ireland, and Scotland.]

TREATMENT.—As a general rule, depletion is necessary, purgation, diaphoretics, refrigerants, local bleeding by leeches, arteriotomy, or cupping, and counter-irritation by warm turpentine, sinapisms, and blisters.

When the *brain* is affected, the most vigorous measures must be employed, such as in phrenitis, as the most rapid changes of structure take place in this organ. Bleeding from the arm should be employed as soon as excitement commences, in all cases in which there is a determination of blood to the head; and venesection must be repeated always from a free orifice, and in the erect or semi-erect position, until relief is obtained. The sooner it is performed in this class of fevers the better; for inflammation is most rapid, and if once established little can be done. In such cases the head should be shaved, and a column of cold water poured over it from a height of from two to ten feet. This is called the *cold dash*, and will succeed after copious abstractions of blood, both general and local, have failed.—(*Richter, Southwood Smith, Tweedie, Graves.*)—The mode of application is as follows:—the patient is placed in a tub, and a man stands on a table near him, who pours upon the naked head, and as nearly as possible on one spot, a steady, continued stream of cold or iced water, from a watering-pot without a top, gradually raising his hand to the greatest elevation. No degree of burning heat in the system, no intensity of pain, can resist this application. In about twenty minutes the heat disappears, the skin becomes cool, the face pallid, the features shrunk, the pulse reduced to a mere thread, and the pain in the head, however violent, ceases. The patient is then wiped dry, and put to bed. Should the cerebral symptoms return, the same plan is to be repeated; and no case will occur which can withstand a third application. This plan is also lauded by Dr. Graves, in hydrocephalus, convulsions of children, and apoplexy.

He condemns the application of leeches to the head, and arteriotomy, but advises leeches to the sides of the neck, or behind the ears, or cupping on the neck. I have delivered this opinion in my Lectures on the Practice of Medicine for some years past, and also considered blisters to the temples or whole head productive of more mischief than benefit, in consequence of the irritation, and determination of blood they cause to these parts. Mr. Ware objected to the application of leeches round the eye for the same reason.

According to M. Andral the nervous system presents but few and slight alterations in fever. In seventy-one cases, the membranes were red and injected only in five subjects. In four of these cases the disease was confined to the convexity of the hemispheres, and in the other it extended towards their under surface. There was arachnitis, and the cerebral substance was injected and was studded with red dots.—(See *Cerebritis*.)—Dr. Southwood Smith and

other late writers on fever, state, that the morbid changes in the brain, and its membranes, are much more common than observed by M. Andral.

The substance of the heart is frequently found pale, flaccid, and discoloured. Its cavities are sometimes empty, or contain some dark coloured fluid. There may be soft coagula. The blood in the arteries and veins is generally dark and fluid in the majority of cases; but sometimes it is of a bright rosy hue, resembling water tinged with some red colouring, and appears to contain scarcely a trace of fibrine. In one case M. Andral observed the blood-like lees of wine, and not very dissimilar to the sanies of an unhealthy abscess. The large veins were unaffected, but in one instance there was arteritis. The blood may exhale in the cavities of the serous membranes either of the head, spinal canal, thorax, and abdomen; and also in the cellular membrane beneath the serous and mucous tissues, as well as between the muscles.

When the *lungs* are implicated, and pneumonia or bronchitis present, the best remedy, after venesection, is the exhibition of tar-
tarized antimony in large doses.

R. Aquæ destillatæ ʒx; Antimonii Tartarizati gr. ij; Syrupi Papaveris ʒss; Syrupi Croci ʒiss; Fiat haustus, secundis, tertiis vel quartis horis capiendus.

The Italian, French, and most of the English physicians, place more reliance on this remedy than on depletion. I can also add my testimony in favour of its efficacy. Pulmonic affections complicated with fever are often overlooked, as they frequently come on insidiously, and their nature can only be ascertained by auscultation, and the other methods proposed for the exploration of thoracic diseases.—(See Pneumonia, Bronchitis, and Pleuritis.)

When the *gastro-intestinal mucous membrane* is inflamed in fever, which will be recognized by the existence of pain on pressing the abdominal parietes, and small hard pulse, the ordinary plan of treatment should be employed—venesection and leeching, with the application of warm turpentine over the part of the abdominal surface which is pained by pressure. The number of leeches must vary, according to the extent of the inflammation; from twelve to sixty or eighty may be necessary. The exact number must be determined by the age and strength of the patient, and the stage of the disease. Tepid oil of turpentine applied after the leeching is an invaluable remedy; it causes an erythematous blush in a few minutes, and is an immediate counter-irritant. It must be used sparingly, as it produces severe burning pain; but this is almost instantaneously relieved by the application of a napkin wetted with cold water. This remedy is preferable to a blister, which may not act at all, or at all events not for hours, during which time the inflammation will proceed.

Every judicious practitioner explores the abdomen at each visit.

to ascertain the existence of inflammation, meteorization, or distended bladder.

When *diarrhæa* supervenes on enteritis, astringents are necessary, such as prescribed under the head of typhus gravior, p. 34: clysters of starch and laudanum are also valuable in severe cases.

Dysentery, or intestinal hæmorrhage, may occur after intestinal inflammation, or may alternate with constipation, and in such cases the acetate of lead with opium, and in the latter case castor oil, should be administered. In all hæmorrhages, unless when large vessels are ruptured, the combination of acetas plumbi and opium will prove the best remedy we possess. It may be given in this form, to the amount of ten or even twenty grains daily, with perfect safety, as I have elsewhere attested.* It may be prescribed as follows:—

R. Aquæ destillatæ ℥x; Acidi Acetici diluti ℥ss; Plumbi Acetatis gr. i-iiij; Liquoris Opii Sedativi ℥v; Syrupi Croci ℥iss: Fiat haustus, tertiâ vel quartâ quaque horâ capiendus.

Enteritis is a common complication with fevers. On opening the abdomen when there has been enteritis, the affected part of the canal is much contracted, and increased vascularity is observable on the external surface. This may be either in the cellular tissue connecting the serous with the muscular coat, or between the latter and the mucous lining or tunic. A mere contracted state of the canal, without increased vascularity, may be caused by spasm, and exist independently of inflammation.

On laying open the inflamed part of the intestinal canal, its inner surface presents a variety of appearances. In some cases there is a shade of redness, varying from a clear vermilion hue to a reddish brown, extending more or less, and then may gradually decline, as usually occurs in the small intestines, or end abruptly, as is frequently observed at the union of the stomach and duodenum, or at the ileo-cæcal valve, of which one orifice may be red, whilst the other retains its normal paleness. The valvulæ conniventes are redder than the intervening spaces, but when they are unfolded, the difference of colour disappears, which shows that it was produced by the opposition of the two lamellæ of peritoneum. At other times there are spots of redness in different parts like isolated inflammations, or diffused lines, which occasionally assume an arborescent form. The mucous membrane becomes red, vascular, and thickened, and coated with coagulating lymph. The dark tint is caused by the intensity of inflammation, and not the result of the duration of the disease. The first effect of inflammation is determination of blood to the affected part, the next is thickening of the mucous tissue, and this is succeeded by softening, and the membrane

* "A New Practical Formulary of Hospitals, considerably augmented," by M. Ryan, M.D. 1836.

becomes so pulpy that it may be readily detached with the handle of the scalpel. In some cases a number of small conical elevations are seen on the mucous membrane, either singly or in groups, and these occur most frequently in the jejunum, ileum and transverse colon.

Another consequence of inflammation is the effusion of a bloody fluid, which is so profuse in some cases as to debilitate the patient. Again, the mucous tissue may be lined by a layer of false membrane, which is evacuated by stool. We also observe this in certain cases of dysentery.

The submucous cellular tissue may be thickened and softened like the mucous membrane. The muscular coat of the intestine seldom undergoes morbid alteration, but it is occasionally thickened, softened, and ulcerated. It also becomes contracted in the affected parts, and gives rise to intus-susceptio or invagination. In such cases the contracted part still retains its vermicular motion, and gradually descends into the adjacent portion, which preserves its natural capacity. This displacement occurs from above downwards and from below upwards.

Enteritis may terminate in resolution, in suppuration, ulceration, or gangrene. Ulceration occurs more frequently in some parts than in others. According to M. Andral's observations on seventy-one cases, the following were the results:—the ileum was ulcerated in its lower portions in thirty-eight; the cæcum in fifteen; the stomach in ten; the transverse colon in eleven, the ascending colon in four, and the descending in three; jejunum in nine, the duodenum in one, and the rectum in one.

Ulcerations are separated from each other in the small intestines, except near the ileo-cæcal valve, at which they become confluent. The progress of ulceration is as follows:—the mucous membrane, when inflamed and softened, is separated from the affected part by the passage of the fecal matter, or is removed by ulcerative absorption.

The edges of the ulcers thus formed are found irregular, red, and a little elevated, or in some cases are pale, smooth, and depressed. The ulceration may extend to the submucous cellular tissue, and finally to the muscular fibres, which are sometimes as distinctly observed as if they had been dissected. These are changed by inflammation; they become red, softened, and absorbed, so that the serous or peritoneal coat only remains. If the ulceration extends to this tissue, a perforation is made through the intestine, the contents of the bowel escape through it into the cavity of the abdomen, and excite intense peritonitis which proves fatal in a few hours. There are, however, cases in which chronic peritonitis is induced, and a cure has been effected.

The symptoms do not always correspond in severity with the progress of the ulceration. Andral examined thirty-eight bodies with a view of determining this point. In eleven there were

symptoms of gastritis. Some degree of inflammation or ulceration was found in the small intestines in thirty; and in fourteen only did the extent of the disease bear a proportion to the severity of the symptoms. The mesenteric glands were red or enlarged when the bowels were ulcerated; but these were affected by the absorption of irritating matters from the intestinal canal.

In about half of the patients, the duodenum, upper jejunum and ileum were nearly filled with bile. The bile contained in the gall-bladder often appeared dark and viscid; in other cases it was pale, similar to serosity, or like sanies from a foul ulcer. The absorption of such morbid secretion must be highly injurious when absorbed and mixed with the blood. In some cases, there is hepatitis with or without jaundice.

The spleen was found enlarged and softened in many cases. It was easily broken with the fingers, and then appeared a reddish pulpy mass, its investing tunic alone retaining any firmness. In other subjects, it was found large and dense, while in others it was reduced in size, but as firm in structure as the liver. This organ seldom retained its normal condition.

The pancreas very rarely offered any trace of alteration. In one or two cases it was vascular and larger than natural, the vascularity appearing in the interlobular cellular tissue.

The mucous membrane of the bladder was slightly inflamed in two cases.

In some cases there is complete suppression of the secretion of urine, and not a drop can be found in the bladder. Coma is a symptom, and a urinous odour has been perceived in the brain on dissection.

This formula often cures diarrhœa and dysentery when other means have failed.

R. Extracti conii gr. x; Opii purificati gr. i; Plumbi acetatis gr. ij: In pilulas tres divide, quarum capiat unam ter in die, superbibendo haustum ex acido acetico compositum, nisi supervenerit somnolentia.

The draught is the better formula.—See p. 99.

R. Cupri Sulphatis gr. ij; Pulveris Opii gr. iij; Confect. Rosæ ʒij: In pilulas xvj divide quarum capiat unam ter quaterve de die.

SYNOCHUS ICTERODES.—YELLOW FEVER.

SYMPTOMS.—Weakness; lassitude; weariness; frequent chilliness; faintness; pains in the head and eyeballs; sighing; great tendency to coma; mouth clammy; tongue furred; pulse variable; skin hot, dry, and hard; bilious vomiting very frequent; yellowness of the eyes and skin; incessant retching and vomiting of frothy bile: peculiar delirium, attended with dilated pupils; great

determination of blood to the head; occasional remissions of fevers; extreme debility; petechiæ; large vibices; black vomit; dry and black tongue; teeth covered with a black fur; hæmorrhage, from mouth, ears, nostrils, or bowels; feeble and scarcely perceptible pulse; hiccup, &c.

CAUSES.—*Predisposing.*—The climate of the West Indies, Gibraltar, and America; hot and dry sultry weather; male sex; intemperance; depressing passions of the mind.

Exciting.—A contagion, produced from the effluvia of putrid animal and vegetable substances, recent exhalations acted on by a vitiated state of the atmosphere, and long continued dry and sultry weather. [No one believes this disease to be contagious at present.—*Gilcrest on Yellow Fever, Cyclopædia of Medicine, 1832.*]

[*Morbid appearances.*—General yellowness of the skin, interspersed with blue or livid spots; the muscles are soft or contracted; membranes of the brain congested, and occasionally an effusion of a sanguinolent serum, is found at the base of the brain, and in the spinal canal; red, livid, or dark black spots and patches on the mucous membrane of the stomach, and this last organ filled with an inky black fluid, (hence the term black vomit) similar to what was vomited, and to that contained in the heart. It was this similarity that led Dr. Stevens to test the black blood with acids, and alkalis, which did not change it, but when neutral salts were added, the fluid acquired a vermilion colour. The intestinal mucous membrane is often of a brown or blackish colour in certain parts; the liver is softened; the kidneys red or covered with gangrenous spots; the bladder contracted and sometimes inflamed.]

TREATMENT.—The remedies must be accommodated to the type of the fever, which is mostly mixed in the beginning, and becomes exquisitely typhoid towards the height.

The early application of the most powerful anti-febrile remedies cannot be too strongly insisted on; these are, cold affusion, blood-letting, and purging.

I. The efficacy of cold affusion is very generally admitted. Dr. Dickson, whose “Directions to the Surgeons on the Leeward Island Station” cannot be made too general, gives his opinion thus: The momentum of the affusion, regulated by the earliness of the disease and the strength of the patient, should be considerable, when these will admit. The frequency of the repetition will depend upon the effects resulting, and the recurrence of reaction, heat, &c. The benefit to be expected from the shock will almost wholly depend upon its being given before the fever is fully formed; but, although this is the case, the affusion in a less powerful degree should be assiduously repeated, at such intervals as the symptoms of reaction indicate; and, when the vital powers become much impaired, gentle aspersion or ablution will produce grateful and soothing effects, and dispose to sleep, when the patient

is heated, restless, or delirious. These will be farther promoted by cold applications to the head, after cutting off or shaving the hair: or, as the head is more accustomed to changes of temperature, it is probable that greater effect will be produced by the application of cloths wet with spirituous or aqueous fluids, to the epigastrium or other sensible parts.

A partial moisture upon the upper parts of the body, if the skin is hot, should not prevent the use of the cold bath, particularly in the early stages of this fever.

[There is little confidence in cold affusion in the yellow fever of the West Indies at present.—*Stevens on the Blood*, &c.]

II. The propriety, quantity, and repetition of bleeding, will depend upon the strength and fullness of the vascular system; the oppression of the sensorial and other functions; the youthful and unseasoned constitution; the effects during and after the abstraction; the ardent nature of the fever; and, above all, upon the short duration of the disease. On the contrary, its employment will be more sparing, equivocal, or altogether prohibited, in the weakly, aged, intemperate, long-assimilated, or previously-diseased habit; and especially in an advanced stage of the disease. The efficacy of this remedy will greatly depend upon its being used as early as possible, particularly within the first twelve hours; and although it may sometimes be extended to double that period, it should be understood that its too late or injudicious employment will infallibly hasten dissolution.

Under the most favourable circumstances, this remedy should be copiously used, and may be repeated according to its good effects; but much will depend upon its being resorted to before the chain of the febrile actions is completely linked, and especially before the stomach and bowels have suffered.

III. The free exhibition of purgatives in this fever is indispensably necessary; and frequently, from the torpor of the bowels, they must be given with a liberality that might appear alarming in temperate climates. They ought to be repeated, and, if necessary, assisted with clysters, until they have produced at least five or six copious evacuations. The thorough evacuation of the whole of the intestinal canal during the first two hours of the fever, cannot be too much insisted on.

The best purgatives are cathartic extract, jalap, &c., or extract, colocynth, combined with calomel; and sometimes the stomach will bear the neutral salts: but those medicines ought always to be preferred which are the least likely to be rejected.

The bowels should be kept freely open during the whole period of the disease, but they should not be too much excited during the latter stage; a distressing diarrhœa, or constant attempts at evacuation with tormina, being a most harassing and unfortunate occurrence late in the disease.

If bleeding, purging, and the cold affusion, which mutually as-

sist each other, are vigorously employed before the fever is fully established, the danger of the second stage will, most probably, be averted; and the most unpleasant symptoms diminish within the first twenty-four hours. The young practitioner is here, however, apt to be deceived:—it is very necessary to caution him against the appearance of a deceitful lull, which, like the calm preceding a storm, is often witnessed about this period, and to recommend his watching the disease with the most assiduous caution. If the patient be really better, the pulse and skin should not only become more natural, but the most distressing and unpleasant sensations should be much relieved, and his feelings altogether much more comfortable. If, on the contrary, an evident amendment or change be not perceived in the course of the second day, or if, after an apparent remission, the symptoms become aggravated, with anxiety, sighing, restlessness, nausea, or a particular disagreeable sensation at the stomach, the worst is to be apprehended, and every exertion used by mitigating the heat, general irritability, and particular symptoms, as they arise.

The means employed on the accession of the disease having failed to cut short the fever, blistering must be had recourse to, in order to counteract and arrest the fatal changes taking place in the stomach and viscera; and simple but powerful stimulants must be exhibited internally, such as the carbonate of ammonia, wine if not nauseated, and spices.

R. Ammoniae Carbonatis gr. vj; Confectionis Rosæcaninae q. s.: Fiant pilulae duae secundâ vel tertiâ quaque horâ sumendae.

R. Ammoniae Carbonatis gr. vj; Pulveris Baccæ Capsici gr. iv; Confectionis Opii q. s.: Fiant pilulae duae secundis vel tertiis horis capiendae.

The capsicum may also be given in the form of what is called pepper-punch: this is much extolled for allaying vomiting.

When the approach of vomiting, or other dangerous symptoms, is apprehended, these remedies are immediately to be employed, without being deterred by the fever that is present; for if the reduction of heat and vascular action be waited for previous to the exhibition of stimulants, they will too frequently not be employed until the very changes to be prevented have taken place, and the patient is sinking into the grave.

To prevent the vomiting, which is of great consequence and difficulty, should farther be attempted by giving frequently a table-spoonful or two of arrow-root, or some other gelatinous or mild agreeable matter, according to the patient's fancy; but so little and often as equally to avoid total emptiness, or offending the stomach by quantity or quality.

Such is the plan of treatment strongly recommended by Dr. Dickson when the fever appears in its simplest and legitimate form, and attacks the youthful plethoric stranger, when he considers it as highly inflammatory in its first stage, with great determination to

the stomach and brain, which, if not immediately remedied, becomes a specific inflammation, running into organic diseases of these parts of the most destructive and irremediable nature, and terminating rapidly in disorganization, gangrene, and death. It is therefore evident that the result will greatly depend on reducing increased vascular action and the energy of the brain, and evacuating the whole intestinal canal in the first, and thus averting the danger of the second, stage.

There are cases, however, in which, from constitutional causes, and a cachectic state of the system and other diseased states, this fever shows evident marks of the septic diathesis soon after its accession, and in such cases the lancet must be abandoned; the affusion of cold water resorted to, if the increased heat of the body will permit; and, after opening the bowels, acids, æther, and camphor must be given, with decoctions of the tonic barks and wine, or dilute brandy, as recommended against typhus gravior. [Dr. Stevens asserts, that saline medicines are the only valuable remedy in this fever. He states, that the mortality was immense at Trinidad before his arrival, but never so since. Dr. Haeket, on the other side, denies the efficacy of saline medicines in the disease.][†]

INTERMITTENT FEVERS OR AGUES.

FEBRIS INTERMITTENS.—INTERMITTENT FEVER.

GENERIC CHARACTER.—A fever consisting of paroxysms or periods of fever, between each of which there is a perfect intermission, or period without fever.

Intermittent fevers are distinguished into *true* and *spurious*, *perfect* and *imperfect*.

The true and perfect intermittents which usually occur are, 1. The *Quotidian*, having an interval of 24 hours; 2. The *Tertian*, 48 hours; 3. The *Quartan*, 72 hours. When the revolution of an intermittent exceeds this time, it is *erratic*.

The other distinctions into spurious, imperfect, and many divisions of the more common forms, are of no practical use, as *the mode of cure is the same*; and in all, the symptoms of the paroxysm are the same: they differ from one another only in the period of the intermission or revolution.

The paroxysm consists of three stages, which follow each other with much regularity; a cold, hot, and sweating stage, [but not invariably.]

SYMPTOMS.—*Of the Cold Stage*.—Languor and sense of debility; listlessness; yawning and stretching; an aversion to motion. The face and extremities become pale; the features shrink; the bulk of every external part is diminished, and the skin over the whole body appears constricted, as if cold had been applied to it. Sensi-

bility is greatly impaired; the secretions and excretions are diminished; the pulse is small, frequent and irregular; and the respiration short and anxious. [There is more or less head-ache, and blueness of the extremities of the fingers and toes.] At length the patient feels a sensation of cold, first arising in the back, and thence diffusing itself over different parts of the body, though sometimes it is confined to a particular part, as to the extremities, side of the head, &c. This is succeeded by rigors, which terminate in an universal and convulsive shaking.

Of the Hot Stage.—After a longer or shorter continuance of shaking, the heat of the body gradually returns; at first irregularly, by transient flushes, soon however succeeded by a steady, dry, and burning heat, rising much above the natural standard. The skin, pale and constricted, is now swollen, tense, and red, and possesses an unusual tenderness and soreness to the touch. The sensibility, which in the cold stage was diminished, now becomes preternaturally acute; pains arise in the head, and flying pains are felt over different parts of the body. The pulse is quick, strong, and hard; the tongue white; there is great thirst; the urine is high-coloured.

Of the Sweating Stage.—At length a moisture is observed to break out upon the face and neck, which, extending, soon becomes an universal and equable perspiration. The heat now descends to its usual standard; the pulse is diminished in frequency, and becomes full and free; the urine deposits a sediment; the bowels are no longer constipated; respiration is free and full; and all the functions are restored to their natural order.

After a specific interval the paroxysm again returns, commencing as above described.

[The pathology given under the title Synochus, p. 96, will apply to the phenomena of the stages of intermittents. During the cold stage, we have manifest proof of the derangement of the functions of the cerebro-spinal system: all the functions are disordered; there is a determination of blood from the capillaries of the surface of the body to the deep-seated large vessels; there is congestion in the head, chest, and abdomen, and this has been repeatedly shown by necrotomic examination. The vascular spongy organs will suffer, if predisposed to disease, especially the spleen, liver, lungs, and brain. This view of the pathology of ague has led Dr. Mackintosh to employ venesection in the cold stage to relieve visceral congestion, and consequently to free the heart and brain from oppression, and to enable the vis medicatrix nature to rally, and either to stop the cold fit at once, or to induce reaction. Depletion has produced this effect in a great number of cases, according to Dr. M. I have also found it efficacious. When the phenomena of intermittent fever are repeated for weeks or months, they almost invariably injure vascular organs, and produce hepatic, splenic, pulmonic, cerebral, or hydropic disease.

It is right to state that the recurrence of the paroxysm is dated

from the commencement and not from the termination of the preceding fit.

The tertian type is most prevalent, and occurs in spring; it generally commences at noon. The quartan is more severe, occurs in autumn, and its fit begins in general in the afternoon. The quotidian occurs in the morning, and most readily changes into the continued or remittent. The quartan has the longest cold stage, the tertian the longest hot stage. Each stage continues an hour or two, and the three are generally over in six hours.

Students are often unable to account for the term tertian, as applied to a fever which recurs at the end of forty-eight hours. This difficulty is easily solved. Suppose the paroxysm commences about noon on the Monday and recurs at the same time on the Wednesday, forty-eight hours only elapse, but the period commences with the third day.

The type changes after some time, tertians and quartans becoming quotidians, and quotidians becoming remittents, and occasionally continued or typhus fevers.

According to the observations of M. Andral, in 1821, of fifty-six cases, twenty-eight presented the quotidian or double tertian type; nineteen the tertian; seven the quartan; and one was erratic.

The frequency of the disease in different seasons, and the relative susceptibility of different ages to it, may be inferred from the following results:—in January, February, and March, nine cases occurred; in April, May, and June, ten; in July, August, and September, seventeen; and in October, November, and December, twenty,—in all, fifty-six. Ages of patients:—at fifteen years, four; from sixteen to twenty, five; twenty to twenty-five, nineteen; twenty-five to thirty, fourteen; thirty to thirty-five, six; thirty-five to forty, one; forty to forty-five, none; forty-five to fifty, five; fifty to fifty-five, one; fifty-five to sixty, one; sixty-one, one; and sixty-eight, one.

A very small number of the patients had been exposed to marsh miasmata, and in some who had been in marshy districts the disease did not occur for some weeks afterwards. Most of the patients resided in damp situations. The fever was induced in several, by want, fatigue, and exposure to cold and wet; and in some no assignable cause could be discovered. It appears from this report and those recorded on continued fevers, that children under the age of fifteen years are exempt, though very liable to exanthematous or eruptive and remittent fevers. I have, however, frequently treated children from three to fifteen years of age, who had been in marshy districts, for well-marked ague; and I have been informed that it frequently attacks such subjects in Lincolnshire and other aguish situations. It is also a fact that persons are affected with intermittent fevers who have never been in marshy localities, but who resided in low, damp situations.

Intermittent fever may be cured in a day in some cases, but may

continue for several weeks or months, especially when badly or injudiciously treated. When violent and long continued it induces organic diseases in the head, chest, or abdomen, and causes congestion or engorgement of vascular organs.]

CAUSES.—1. *Predisposing*.—Debility, however induced; by a watery, poor diet; great fatigue; long watching; grief; anxiety; the suppression of accustomed evacuations; the repulsion of eruptions; preceding disease; cold, united with moisture, in whatever way applied to the body.

2. *Exciting*.—Marsh miasma; or the effluvia arising from stagnant water, or marshy ground, impregnated with vegetable matter in a state of putrefactive decomposition.

PROGNOSIS.—When the paroxysms are of short duration, when they are regular in their recurrence, and leave the intervals quite free, the disease, at least in our climate, is unattended with danger. It is extremely fatal in tropical countries.

The circumstances giving rise to an unfavourable prognosis are—

1. The disease proving obstinate, and the paroxysms anticipating the usual time of their return, and there being a feverish disposition, manifesting tendency to a continued form of fever.

2. The paroxysms being of long continuance, violent, and attended with much anxiety and delirium.

3. The disease being combined with others; or other diseases being induced by a protracted state of the original intermittent. These are most frequently dysentery, cholera, enlargement of the liver and spleen, ultimately inducing dropsy and jaundice; swelling of the tonsils and glands.

4. The presence of unfavourable symptoms, as convulsions occurring during the paroxysm, preceded by great coma; obstinate costiveness; hiccup, with vomiting and pain upon pressure in the hypochondriac and epigastric regions; depraved sense, as double vision; great prostration of strength; vertigo; dry, black tongue; fetid excretions.

TREATMENT.

In the Paroxysm.

Indications.—1. During the cold stage, to endeavour to induce the hot.

2. During the hot stage—to promote a perspiration.

The *first indication* [for the treatment of the *cold fit*] requires artificial warmth; the pediluvium; fomentations to the feet; the warm bath; (dry heat applied to the pit of the stomach, abdomen, along the spine, and to the hands and feet;) warm diluent liquids; cordial diaphoretics; and opiates. [The best remedy is blood-letting, according to Dr. Mackintosh.]

The common saline draught and diaphoretic prescribed in continued fevers, may be given every half hour.

The *second indication* will be best fulfilled by the use of cold acidulated liquids, and continuing the remedies recommended during the cold stage, especially the ætherial ones.

The principal object in the treatment of the paroxysm of an intermittent is, to put a period to the stage which is present, by inducing that which naturally succeeds it; till a free flow of perspiration takes place. To effect this in the generality of cases, little more will be required than the means above recommended. Should, however, the cold stage prove extremely severe, recourse may be had to a warm bath or an emetic, if this have not been administered before the commencement of the paroxysm.

[In the *hot fit*, the bedclothes are to be diminished, saline draughts, antimonial, and diaphoretics employed.

In the *sweating fit*, the patient must be kept cool, wiped dry after it is over, and his clothes changed. When there is much debility, he may have some brandy, or wine and water.]

Should there be in the hot stage, a congestion of blood in the vessels of the head, or delirium; cupping from the temples, or leeches, are to be applied, and opiates laid aside.

If there is any inflammatory diathesis, nitre is to be added to the medicines; and if any inflammation exist, it must be treated in the usual way.

When a comatose state supervenes, give ammonia with camphor, largely, and apply blisters.

R. Ammoniae Carbonatis gr. vj; Liquoris Ammoniae Acetatis fʒij; Misturæ Camphoræ fʒij; Syrupi Aurantii fʒj: Fiat haustus secunda vel tertia quaque hora adhibendus.

Admoveatur inter scapulas emplastrum cantharidis amplum.

Adplicetur emplastrum lyttæ capiti raso.

Cataplasmata sinapeos plantis pedum applicanda.

[If coma depends on cerebral congestion, ammonia would be injurious:—the cold dash, as described in my remarks in synochus, with head affection, would be the only remedy. See p. 98.]

In the Intermission.

Indications.—1. To excite a new action in the system by certain remedies, administered at the commencement, or immediately before the accession, of the cold fit; and thereby to destroy the morbid concatenation induced by the cause of the disease.

2. To prevent the return of the paroxysms by invigorating the body.

The *first indication* is answered by emetics, by æther, or by opium.

In the beginning of these, as well as of other fevers, it is necessary to clear the bowels; and the best time to do this is during the intermission: any common aperient may be administered.

The emetic should be administered in the earliest part of the

treatment, and in time for its operation to commence just on the accession of the fit. For a formula, see p. 80.

Opium should be given dissolved, and in a full dose, [about an hour before the cold fit, and increased to $\bar{3}$ ss, if this stage proceeds, thus :

R. *Misturæ Camphoræ* $f\bar{3}xiiij$; *Tincturæ Opii* $f\bar{3}ss$; *Syrupi Tolutanti* $f\bar{3}j$.]

If the *spiritus ætheris sulphurici compositus* be administered, the patient is to take a drachm undiluted. It may derange the breathing, and excite great distress for a few seconds.

[According to my experience the following is the most successful plan of treatment during the intermission or apyrexial period. The bowels being regular, exhibit quinine in combination with the sedative solution of opium, or alternate its use with proper doses of morphia. I have found the following mixture generally effectual, the quantities varied according to the age, &c. of the patient.

R. *Quinina Sulphatis* gr. $vj-xij$; *Infusi Rosæ* $\bar{5}v$; *Syrupi Aurantii* $\bar{5}vij$; *Liquoris Opii Sedativi* $\bar{3}ss-j$: *Dosis* $\bar{3}j$ ter in die.

According to the majority of physicians quinine is the best remedy, while in the opinion of Lind and Trotter opium is preferable ; but in the above prescription we have both united. The chemical practitioner is informed that the sedative preparation is an aqueous solution of morphia, and less objectionable than the acetate or muriate of that substance, or tincture of opium combined with the sulphate of quinine.

If this fails, give a full dose of the sedative solution of opium, or of some preparation of morphia, an hour before the recurrence of the next cold fit ; if the medicine do not prevent it, bleed the patient *pleno rivo* when it has commenced. If quinine, opium, and depletion fail, exhibit the arsenical solution in proper doses during the intermission ; but this remedy is highly dangerous when continued for any length of time, as it generally produces gastro-enteritis. (See *Account of Arsenic in a New Practical Formulary of Hospitals.*.)]

For the fulfilment of the *second indication*, recourse must be had to a nutritive diet ; regular exercise, if the state of the patient render its use practicable ; and one of the following tonics, [but of these quinine is now preferred :]—

1. *Cinchona Lancifolia*.—The Peruvian Bark. This heroic medicine is to be given in substance, and in large doses. If the interval be long, its exhibition should be delayed till within six or eight hours of the time of the accession of the cold fit ; should there be any inflammatory diathesis, this ought first to be reduced during the hot stage of the preceding paroxysms, by saline diaphoretics. Where there is great debility, the bark may be joined with wine and aromatics ; if it occasion purging, with opiates and astringents ; if costiveness, with rhubarb. (See *Dyspepsia.*.)

[From ten to twenty grains of sulphate of quinine in an ordinary

sized bottle of sherry, which contains about twenty-eight fluid ounces, may be prescribed in the quantity of a small wine-glass full three times a day, about half an hour before each repast, that is to say, when the stomach is empty, in common language. Good sherry will not be rendered turbid on the addition of sulphate of quinine, but an adulterated wine will become milky and very disagreeable. The quinine may be prescribed in the above quantity in the infusion of cloves or quassia, with a drop of dilute sulphuric acid to each grain, and five drops of oil or essence of peppermint to the pint and a half of vehicle. The various other tonics may also be employed with advantage.—(*See a New Practical Formulary of Hospitals*, 1836.)]

Observe.—One ounce of good bark is generally sufficient to prevent a return of the fit, when given within the six hours which precede the attack:—one drachm the first two doses, and one drachm and a half each succeeding hour; but the stomach often rejects this dose, and then more time is required. [The sulphate of quinine may be given to the amount of ℥j or ʒss in the course of twenty-four hours; but in general much smaller doses are sufficient. An Italian professor (Speranza) has given one hundred and eight grains as a dose—the medicine must have been adulterated, or it would have done great injury.

Professors Cooper, Graves, and A. T. Thomson, have found doses of two grains, three times a day, effect a cure in general; and Professor Elliotson has found five grains every four hours effectual. He has used it in cases complicated with inflammation of the head, chest, and abdomen, and in chronic diseases of the lungs, liver, combined with dropsy, without doing injury or retarding the effects of antiphlogistic measures; but subsequent writers deny the accuracy of this statement, and declare that it has done great mischief. It has been mixed with cerate and applied to a blistered surface, in cases in which the stomach was irritable, with success; and also rubbed on the gums with benefit. Other remedies have been lately recommended as efficacious as quinine; and these are, salicine, piperine, illicine, and the alkali of carota. Salicine is given in the same dose as quinine; piperine is to be prescribed in the form of pill only: dose, from one to ten grains.

The dose of illicine, or the alkali of the holly, is from six to twenty-four grains, and was found as efficacious as quinine by Dr. Rousseau of Paris.—*Trans. Med. Bot. Soc.* 1832.

The best mode of ordering quinine is the following:—

R Confectionis Rosæ ℥j; Aquæ ferventis ʒiiss; Acidi Sulphurici Diluti ℥ij; Quininae Sulphatis gr. ij; Tincturæ Aurantii ʒj. Fiat haustus, secundâ vel tertiâ quaque horâ intermissionis tempore, exhibeatur.]

1. The bark of the *Chinchona oblongifolia* is equally efficacious with that of the *lanceifolia*, and may be used in the same way, and in similar doses.

2. *Salix fragilis*.—This is called crack-willow; the bark is given in the same way, and in the same doses, as the Peruvian bark, but not with equal advantage.

3. *Cascarilla*.—This is very seldom employed, yet it is sometimes successful, and may be combined with cinchona in those cases in which Peruvian bark purges.

4. *Cusparia*.—This bark, better known by the name Angustura, is also administered in the same doses as the Peruvian bark, and in the same way. It is often serviceable when there is a weakness of the bowels producing diarrhœa, and especially when the cinchona cannot be made to agree with the bowels.

5. *Swietenia febrifuga*.—This is said to cure agues: it may be given thus:

R. Swieteniæ contusæ $\overline{3j}$; Aquæ destillatæ $f\overline{3xviiij}$; Coque per horæ sextam partem et cola.

R. Hujus colaturæ $f\overline{3jss}$; Tincturæ Cinchonæ $f\overline{3jss}$; Syrupi simplicis $\overline{3j}$: Fiat haustus secundâ, tertiâ vel quartâ quaque horâ sumendus.

6. *Cinchona Jamaicensis*.—Dr. Wright, of Jamaica, gives the bark of this tree in the same way and doses with the common bark, and with the greatest success.

7. *Quercus*.—The oak bark and excreescences, called *gall-nuts*, are sometimes employed.

R. Corticis Quercus exterioris contusi $\overline{3jss}$; Aquæ ferventis $f\overline{3xx}$; Macera per horas duas vel tres, leni calore, dein cola.

R. Hujus colaturæ $f\overline{3jss}$; Pulveris Gallæ gr. x; Tincturæ Cardamomi Compositæ; Syrupi Zingiberis, $\text{aa } f\overline{3j}$: Fiat haustus, secundâ tertiâ vel quartâ quaque horâ sumendus.

8. *Bitter tonics*, especially the following:—*Carduus benedictus*, blessed thistle; *Gentiana*, gentian; *Absinthium*, wormwood; *Anthemis*, chamomile; *Quassia*, bitter wood; *Calumba*, calumba; *Faba Sancti Ignatii*, St. Ignatius' bean; *Chironia centaurium*, lesser centaury; *Arnica montana*, mountain arnica; *MELIA AZEDARACHTA*, head tea; *Swietenia febrifuga*, mahogany tree; *Nerium ambelysentericum*, Tellicherry bark; *Strychnos nux vomica*, mavens; *Prunus lauro-cerasus*, cherry bay; *Geum urbanum*, mavens; *Lycopus Europens*, trater horehound; *Smilax China*, China.

[These remedies are seldom used in this country at present.]

9. *Potassæ Arsenias*.—This forms the basis of Fowler's tasteless ague-drop. It cures the most obstinate intermittents, even when Peruvian bark fails; but it must be used with the greatest circumspection, it being a most active poison. [It is used in the treatment of the poor in parish workhouses, and unions often or twenty parishes since the New Poor Law Act, which does not allow the medical practitioner in many districts a farthing a head for each unfortunate pauper. The ague-drop, or the solution of arsenic, is a cheap, but a poisonous substitute for quinine or opium in the

treatment of intermittent fevers. It is extensively employed in the old and new worlds, and was the suggestion of empiricism, but not of physiology. I deem it most important to observe, that when given in full doses, or when continued for weeks or months, it is a slow but deadly poison, it most effectually ruins the health, and destroys life. It was proposed in ignorance of pathology, and ought to be excluded from every modern pharmacopœia.]

The liquor arsenicalis is the best preparation of it.

R. Liquoris Arsenicalis ℥vj; Aquæ Cinnamomi f̄ssij; Tincturæ Cardamomi, Syrupi Zingiberis, āā f̄ssj: Fiat haustus, sextis horis capiendus.

R. Liquoris Arsenicalis ℥vj; Tincturæ Opii ℥viij; Confectionis Aromaticæ ℥j; Misturæ Camphoræ f̄ssij; Syrupi Aurantii f̄ssj: Fiat haustus, ter in die deglutiendus.

10. *Zinci sulphas*.—This is a most excellent tonic.

R. Zinci Sulphatis gr. j; Infusi Quassiae f̄ssvjss; Tincturæ Calumbæ f̄ssj: Fiat mistura, cujus capiat æger cochlearia quatuor secundâ tertiâ vel quartâ quaque horâ.

R. Zinci Sulphatis gr. ij; Decocti Cinchonæ f̄ssvijss; Tincturæ Gentianæ f̄ssij: Fiat mistura, cujus sumantur cochlearia tria magna tertiâ vel quartâ quaque horâ.

R. Zinci Sulphatis gr. iij; Extracti Gentianæ duri ssj: Fiat massa in pilulas xij dividenda, quarum capiat æger duas ter quaterve die.

11. *Hydrargyrum*.—Mercury is always necessary in the cure of intermittents, when there is any visceral obstruction; a small dose should be given every night, so as just to affect the mouth, and the tonic medicines are to be continued.

R. Hydrargyri Submuriatis gr. j; Confectionis Opii gr. vj: Fiat pilula omni nocte capienda.

R. Pilulæ Hydrargyri gr. iv; Extracti Opii gr. ¼: Fiat pilula, singulis noctibus, sumenda.

R. Hydrargyri Oxidi Rubri gr. j; Pulveris Cornu usti cum Opio ℥ss: Misce et divide in pulveres quatuor æquales, quorum sumat unum omni nocte.

R. Camphoræ ℥j; Unguenti Hydrargyri fortioris ss: Fiat unguentum, de quo illinantur gr. x omni nocte in extremitates.

R. Olei Camphorati ssj; Morphine acetatis gr. ij: Fiat unguentum in usum.

[Morphia dissolved in camphorated oil, is the best endermic sedative application.

From the preceding statements, we may observe that intermittents are not always produced by marsh miasmata; that they attack some individuals who reside in the driest situations, and were never exposed to the effluvia of marshes. There are numerous species of them, all of which are cured by the above plan of treatment. Persons who have recovered, feel extremely indisposed in cold, damp weather, from errors in diet, or mental emo-

tions ; or have frequently a relapse. From the foregoing plan of treatment, we may deduce the following conclusions :

That bleeding, emetics, or large doses of the sedative preparations of opium, will stop that cold stage ; that quinine, either alone or combined, when the stomach is irritable, with opium, musk, camphor, cascarilla, or orange-peel, in the apyrexial period, or intermission, will prevent a return of the disease ; and should these remedies fail, or should the stomach reject them, we may apply, with success, sulphate of quinine to a blistered surface on the arm (Speranza, *Annal. di Med.*, 1823), by the endermic method, or in the form of elyster ; and should it not arrest the disease, we then ought to employ salacina, piperina, or ilicina, or the various tonics already enumerated.

Dr. Jackson, of Philadelphia, advises ten grains of cobweb, (more especially that of the black spider,) which is usually found in cellars, barns, and stables, as a substitute for quinine ; and Dr. Dewees attests its efficacy. I have never known it used in this kingdom, nor, in my opinion, is it likely to be employed while more efficient remedies may be administered.

The convalescent should wear flannel next the skin, and warm clothing in cold weather, and avoid exposure to damp, moisture, abstain from undigestible food, and keep his mind serene and tranquil.]

· FEBRIS REMITTENS.—REMITTENT FEVER.

CHARACTER.—A fever arising from the same *causes* as the intermittent ; but in which, although evident and distinct exacerbations and remissions can be perceived, there is no complete interval or apyrexia, one exacerbation appearing not entirely to go off before a fresh attack ensues. [Remittent fevers rarely occur in these climates, but are very common in tropical countries ; and from their frequent complication with derangement of the liver are denominated Bilious Remittents.]

The *symptoms* vary according to the situation and constitution of the patient and the season of the year. Sometimes they are those pointing out a redundancy of bile ; sometimes the nervous are most prevalent ; at others the putrid.

The protraction of the exacerbations generally arises from some cause which keeps up an irritation in the system, and thereby prevents the disease assuming its regular form ; or it depends upon fever of another type having been accidentally superinduced.

The *prognosis* will be drawn from the presence or absence of those circumstances which indicate danger in that particular form of fever which the disease assumes ; and which are pointed out under the heads of the different species of typhus, synocha, or synochus. In warm climates it is often fatal.

TREATMENT.—The *treatment* will entirely depend upon the concomitant fever or other cause which prevents the state of apyrexia, and gives to the disease the remitting form. Should it have a tendency to either of the preceding genera, the treatment will be such as is there laid down; if it depend upon some cause of irritation, as diseased viscera, this is to be removed by the appropriate means elsewhere enumerated.

[This disease is seldom observed in this country; but is of frequent occurrence in Philadelphia, according to Dr. Dewees (*Practice of Physic*, 1830.) He is a strong advocate for venesection during the paroxysm, when the pulse and other symptoms require it. A mild form of this disease attacks delicate persons in the autumn, and is usually preceded by irregular action of the digestive organs, dyspepsia, flatulence, abdominal tension, or diarrhœa. It is called gastric fever by Professor Frank. The ordinary causes of fever induce it, as cold, damp, fatigue.

SYMPTOMS.—The patient complains of languor, lassitude, or drowsiness; has alternate chills and flushes, but no perspiration; skin hot and dry; thirst, nausea, or a total loss of appetite. The fever increases in the evening; there may be partial perspiration, but it is never general. Sometimes the exacerbation or increase of fever occurs at noon, and sometimes in the middle of the night. When the disease is left to itself, it causes determination of blood to the viscera of the head, chest, and abdomen.

TREATMENT.—Depletion both general and local, active purgation, in which calomel must be employed, antimonials, refrigerants, &c. The disease usually continues for ten or twelve days.

INFANTILE REMITTENT FEVER.

This is a very common disease in children, caused by improper food, which induces irritation, inflammation, or ulceration in the intestinal canal. The child is feverish at a certain hour of the day; calls for cold water, refuses all solid food, picks its nose or lips, the last being covered with a brown fur; the alvine dejections are black, brown, white, green, or curdled. This disease is generally ascribed to worms, hydrocephalus, or dentition.

The first indication is to improve the secretions, by the exhibition of calomel or hydrargyrum cum creta with rhubarb, or jalap, and to change the diet of the child. Animal food should be interdicted, as it is improper till the child has teeth to masticate it. The diet should consist of milk, tous les mois, arrow-root, sago, beef or veal tea, chicken broth, gravy of roast meat, mixed with mealy mashed potato; and small and repeated quantities of these should be given at a time. The following remedies will generally effect a cure when the diet is regulated: the dose must vary according to the age and strength of the little patient:—

R. Pulveris Rhei ʒi-ij; Hydrargyri Submuriatis gr. vj-x; Pul-

veris Cinnamomi, Compositi gr. vj-x; Sacchari purificati ʒi: Divide in chartulas vj; detur una mane nocteque.

[In mild cases, the hydrargyrum cum creta may be substituted for the calomel.]

FEBRIS HECTICA.—HECTIC FEVER.

This fever is, in almost every instance, a symptomatic affection. It differs from a continued, an intermittent, and a remittent fever: yet in some respects it resembles each, and approaches most to the last.

The febrile symptoms present themselves in obvious exacerbations, which begin with a sense of chilliness, which is succeeded by an increase of heat, an accelerated pulse, and these are followed by a perspiration. There are two exacerbations in the twenty-four hours. The first occurs generally about noon, and abates mostly in about four or five hours: this remission is but of short duration; a more violent exacerbation soon follows, which keeps increasing in violence until morning, when, about two o'clock, a perspiration breaks out which resolves the paroxysm.

The pulse, during the exacerbations, is generally strong, and beats from 96 to 120; the urine is highly coloured, and deposits the lateritious sediment: the cheeks are flushed, and have a florid, circumscribed redness; there is a burning heat in the palms of the hands and soles of the feet; in the periods of remission the pulse is mostly reduced in frequency, but seldom so low as in health: the appetite is not much impaired; tongue clean, moist, and red.

The bowels are generally costive at the beginning.

From the commencement of this fever the body wastes away, and in the advanced stage, the emaciation is very considerable indeed.

At length the fever becomes more continued, and the exacerbations more violent; the appetite falls off; colliquative sweats alternate with diarrhœa; the facies Hippocratica is marked in the countenance; and under an increased severity of these symptoms, and those of the disease which causes the hectic fever, the patient sinks.

TREATMENT.—This must depend on the disease of which the hectic fever is symptomatic. If debility is the cause, or there is no apparent disease to produce the hectic symptoms, the medical treatment must be very similar to that of an ague, with a vegetable and milk diet. A course of sarsaparilla, with a mild or vegetable diet, now and then removes a hectic fever, the cause of which is not apparent. [Quinine often does good. In colliquative diarrhœa, the sulphate of copper with opium is the best remedy.—[See *Diarrhœa*.]

This fever is generally supposed to arise from absorption of pus

on large surfaces, as in suppuration of the lungs, liver, hip joint, &c. Dr. Mackintosh denies the accuracy of this opinion, and refers the disease to inflammation of the mucous membranes. The former opinion is unequivocally the most correct.]

Fevers have also been described by other names than those which have been enumerated.

1. From their seizing persons under particular circumstances, into *puerperal* and *milk fever*, &c.

2. From the situation of the person, into *camp*, *jail*, *hospital fever*, &c.

3. From the place in which they mostly occur: hence *Waleheren*, *Demerara*, *West Indian fever*, &c.

4. From some particular symptom, as *bilious*, *petechial fever*, &c.

5. From the season of the year in which they prevail: hence *vernal* and *autumnal fever*, &c.

6. From their being accompanied by some other disease, as *catarrhal*, *verminous*, *scorbutic fever*, &c.

These are either synocha, typhus, or synochus; and they observe either a continued, remittent, or intermittent form.

[The exanthemata or eruptive fevers are inflammatory or typhoid, and some of them are not contagious. They are thus defined by Willan. Acute inflammations of the skin, characterised by more or less vivid redness, which instantaneously disappears on pressure of the finger, attended with fever. The species are erythemata, erysipelas, roseola, measles, and urticaria or nettle-rash. Dr. Cullen has included other diseases, as plague, pemphigus, and aphthæ, which are not now considered exanthemata.—See the works of Plenck, Willan, Bateman, Alibert, Plumbe, P. Rayer, Bielt, Cazenave and Schedel, Green, and my own classification, see *London Medical and Surgical Journal*, 1835, and *Prospectus of Lectures on the Practice of Medicine*, 1836-37, which will be found at the end of the Cullenian Exanthemata, page 140. I have now nearly ready for publication, *A concise Manual of Diseases of the Skin and its Appendages*, arranged in accordance with the present state of anatomy, physiology, pathology, and therapeutics; to which I venture to refer my readers, who wish, and ought, to be acquainted with this branch of medicine.]

ORDER III.

EXANTHEMATA. ERUPTIVE FEVERS.

CHARACTER.

Contagious diseases, attacking a person only once in his life, beginning with fever; at a definite time, eruptions, often numerous and small, scattered over the skin.

GENERA.

VARIOLA	.	.	.	.	Small-pox.
[VACCINA	.	.	.	.	Cow-pox.]
VARICELLA	.	.	.	.	Chicken-pox.
RUBEOLA	.	.	.	.	Measles.
SCARLATINA	.	.	.	.	Scarlet Fever.
PESTIS	.	.	.	.	Plague.
ERYSIPELAS	.	.	.	.	Saint Anthony's Fire.
MILIARIA	.	.	.	.	Miliary Fever.
URTICARIA	.	.	.	.	Nettle Rash.
PEMPHIGUS	.	.	.	.	Vesicular Fever.
APHTHA	.	.	.	.	Aphthous Fever.

[It is impossible to account for the location of contagion. It prevails at certain seasons only, and we cannot say where it exists at other periods of the year.—See an article on the Extermination of Cholera, Fevers, and all contagious Diseases, by Dr. Sanders of Edinburgh, *London Medical and Surgical Journal*, 1832, vol. ii., No. 39. I have taught the same doctrine in my Lectures since 1823.]

VARIOLA.—SMALL-POX.

SPECIES.—The small-pox is distinguished into two species; the *distinct* and *confluent*; implying that in the former the pustules are perfectly distinct and separate from each other, and that in the latter they coalesce, and the eruption is continuous.

I. VARIOLA DISCRETA.—*Distinct small-pox*.—The eruption of distinct small-pox is ushered in by a fever of the inflammatory [or asthenic] type, characterized by considerable pains in the back and loins, nausea, vomiting, pain in the epigastrium upon pressure, disposition to drowsiness, [coma,] and in infants often one or more epileptic [or eclamptic] fits.

Towards the end of the *third* day from its commencement, the eruption makes its appearance on the face and hairy scalp, in the form of small red points, not dissimilar to flea-bites.

During the *fourth*, it extends itself successively to the neck, breast, upper extremities, and at length occupies the whole body. [It is sometimes preceded by epistaxis.]

About the *fifth*, a little vesicle, appearing depressed in the middle, containing a colourless fluid, and surrounded by an inflamed areola or margin, perfectly circular, may be observed on the top of each little point or pustule.—The eruptive fever now disappears [or declines.]

About the *sixth*, the saliva becomes increased in quantity and viscid; at the same time that there is a degree of swelling of the throat, difficulty of deglutition, and hoarseness.

On the *eighth* day, the pustules are completely formed and spherical, or prominent, and appearing almost terminated in a point; and the contained matter has assumed the appearance of pus. The face swells; and the swelling extending to the eyelids, these often become so much enlarged as to close the eyes. [The mouth, nose, fauces are covered with pustules, there may be ptyalism in adults, and diarrhoea, in children, or sanguineous alvine or urinary evacuations in either.]

About the *eleventh*, the pustules have gained their full size, (which differs in different epidemics, but is generally that of a pea,) the matter has changed from a white to an opaque yellow, and a dark spot appears on each.—At this time the tumefaction of the face subsides, and the hands and feet begin to swell. The secondary fever now generally makes its appearance, [and may be slight or severe.]

After the *eleventh* day, the pustules from being smooth become rough, break, and discharge their contents; which drying on the surface a small crust is formed over each of them.—These in a short time fall off, and leave the part they covered of a dark brown colour, which often remains for many days; and in cases where the pustules have been large, or late in becoming dry, deep indentations of the skin. The swelling of the hands and feet gradually subsides, and about the seventeenth day the secondary fever disappears. [When the disease occurs spontaneously, it is called *Natural Small-pox*.]

2. VARIOLA CONFLUENS.—*Confluent small-pox*.—Both in its symptoms and progress, the confluent kind differs materially from the distinct or benign. The eruptive fever often shows a tendency to the [asthenic, ataxic, or] typhoid form; and besides possessing the characteristic symptoms above-mentioned, which are usually present in a more marked degree, it is frequently attended with coma or delirium; in infants with diarrhoea; in adults, salivation.

The eruption is irregular in its appearance, and in the succession of its stages. It is usually preceded by an erythematic efflorescence upon the face, from which the pustules emerge on the *second day* in the form of small red points; many of which soon coalesce and form clusters greatly resembling the measles.—Maturation is

more early; but the pustules do not retain their circular form, are of an irregular shape, often flattened, and appear like thin pellicles fixed upon the skin, instead of true pus, containing a brownish ichor; nor are they surrounded by an inflamed margin, the intermediate spaces between the clusters appearing pale and flaccid.—The swelling of the face and salivation commence earlier, and rise to a much greater height, than in the distinct form of the disease.—The fever, though it generally suffers a slight remission, does not cease upon the appearance of the eruption, and about the ninth day it suffers a remarkable exacerbation; and in some instances all the worst symptoms of typhus supervene; the eruption assumes a dark livid or black hue, petechiæ and passive hæmorrhages [bloody urine or dysentery] make their appearance, [there is coma, convulsions, sordes on the lips and teeth,] and the patient is often carried off on the night of the eleventh day from the commencement of the disease. [Should recovery happen, the pits or scars will be much deeper than in the former. So fatal was this disease in former times, that Sydenham observed, "*multa infantum millia letho dedit.*"]

CAUSES.—Variola is the effect of a specific contagion.—It is produced either by subjecting the body to the effluvia arising from those who already labour under the disease, or by the introduction of a small quantity of the variolous matter into the system by inoculation.

PROGNOSIS.—Variola, in its regular and benign form, seldom proves fatal, unless in consequence of improper management; but it often leaves behind it a predisposition to inflammatory complaints, particularly to ophthalmia and visceral inflammation, more especially of the thorax; and it not unfrequently excites scrofula into action, which might otherwise have lain dormant in the system.

The circumstances which lead to the apprehension of danger are,

1. The appearance of symptoms announcing the approach of the confluent form of the disease (*vide* Symptoms), or the disease in its progress approaching to the malignant character before described; the fever assuming the form of typhus, and the pustules becoming flattened, livid, or interspersed with petechiæ.

2. A sudden disappearance of the eruption, subsidence of the swelling of the face or extremities, suppression of saliva, or depression of the pustules, followed by great prostration of strength, universal pallor of the skin, great anxiety, oppression at the chest, syncope, convulsions, coma, or delirium.

3. Complications with visceral disease, as inflammatory affections of the brain, the lungs, or the alimentary canal, [gangrene or suppurations in these viscera, or in the joints, blindness, and deafness.]

In general the fate of the patient is determinable from the

eleventh to the seventeenth day. The crisis of the secondary fever is usually accompanied with a diarrhœa, or sediment in the urine.

[On dissection, the trachea, bronchi, lungs, liver, stomach, and intestines, are covered with pustules (Lieutaud), as also the heart; while the brain and cerebellum are congested, and a putrescent degenerescence is found in all the large cavities of the body.]

DIAGNOSIS.—Difficult at the commencement of the disease. The pain in the stomach increased upon pressure, and the drowsiness, are the chief pathognomonic symptoms.—The regular succession of appearances, and changes in the eruption, afterwards render the distinction easy.

The distinct may be often distinguished from the confluent, before the eruption appears, by the mildness of its attack; by the synochal type of the fever; the late appearance of the eruption; and the want of typhoid symptoms.

[The disease is most dangerous to adults and pregnant women, and often proves fatal to them.]

TREATMENT.

Of the distinct.

Indications.—I. To moderate the fever, when violent.

II. To support the strength, when deficient.

III. To obviate all those circumstances that may produce any irregularity in the appearance, or in the progress, of the disease. [The free admission of air, first proposed by Sydenham, is of great importance; and also the use of the chlorides.—See Synochus.]

In cases of violent action, in full and plethoric habits, bleeding has been had recourse to, and is recommended by many; but it is a practice mostly replete with danger, and to be avoided, if possible; for the subsequent debility generally overbalances the temporary advantage that may be gained by this remedy.

Purgings are often successful in diminishing the violence of febrile action without inducing much weakness.

An emetic has been given with advantage at the accession of the disease, except in cases where there is much pain of the stomach.

During the eruptive fever, when this is pure synocha, the febrile symptoms, if considerable, are to be moderated by exposing the body of the patient to a cool atmosphere; by frequently administering cold diluent fluids, as lemonade, imperial saline draughts, nitre; at the same time administering saline aperients, so as to keep the bowels loose.

[Dr. Home, of Edinburgh, employed cold affusion in a doubtful case, and continued it daily after the appearance of the eruption. He adopted the same plan ever afterwards; and also in scarlatina

and measles. Dr. Sheriff, of Deptford, favoured me with his reports of these cases, which were taken when he was clinical assistant to Dr. Home; and I have published the histories of the cases in full, in the *London Medical and Surgical Journal*, 1832, vol. 2.]

If there be great irritability and restlessness, opium in small quantities, with a saline draught, will be serviceable, or with a small quantity of antimony.

R. Pulveris Ipecacuanhæ Compositi gr. ijss; Pulveris Antimonialis gr. ij; Confectionis Rosæ Caninæ q. s.: Fiat pilula sextâ quâque horâ sumenda cum haustu salino communi.

R. Pulveris Opii; Hydrargyri Submuriatis, aa gr. $\frac{1}{4}$; Pulveris Antimonialis gr. ij: Fiat pulvis, octavâ quâque horâ capiendus, ex pauxillo mellis.

Small doses of mercury are often serviceable in moderating the febrile action of variola, even when exhibited so as slightly to affect the gums; no inconvenience is likely therefore to arise from the administration of the above.

If the febrile symptoms indicate a tendency to typhus, the mode of treatment recommended for the milder form of typhus fever should be resorted to.

When the eyelids swell much, and are inflamed, a blister may be applied behind the ears, or leeches to the temples. [In such cases, and when the face is swollen, olive oil or cream is often applied.]

If the throat be much affected, and there is difficulty in swallowing, a blister is to be applied to the neck, and gargles of infusion of roses directed.

As debility comes on, recourse must be had to quinine, wine, and nourishment.

Determination to the head or chest, or other viscera, requires blisters, pediluvium, sinapisms to the feet [and ordinary remedies.]

Obstinate vomiting, which in this disease often proves both a troublesome and dangerous symptom, is most effectually allayed by saline remedies, in the act of effervescence, with opium.

R. Potassæ Carbonatis ℥j; Misturæ Camphoræ f℥x; Tincturæ Opii ℥iv; Syrupi Aurantii f℥j: Fiat haustus, quartâ quâque horâ sumendus in actu effervescentiæ cum cochleare uno magno succi limonis recentis.

In all cases where there is a great propensity to sweating, after the eruptive fever has passed by, a cool regimen will be particularly necessary.

Diarrhœa is to be checked when it is excessive and increases debility, by small doses of opium [with chalk mixture.—See p. 34.]

When the eruption suddenly recedes, or the pocks sink and become very much dimpled, and any alarming symptoms supervene, as rigors, convulsions or delirium, recourse must be had to blisters and sinapisms [leeching the scalp, cold dash on the head

while the body is in a warm bath ; and the vapour bath have been found of great value : we must guard the head, chest, and abdomen against inflammation. It has been proposed to effect this by cauterizing the pustules ; but this practice has proved injurious in some cases, and requires more observation to justify its employment. Suppuration of the knee, ankle, wrist, and elbow joints supervene in some cases on recovery from this condition.]

Upon the accession of the secondary fever, if this preserve the character of synochia, and be not attended by any debility, recourse must be had to the same means of moderating it employed at the commencement of the disease.

If, on the contrary, the secondary fever be typhoid, the means recommended for the cure of typhus gravior must be enforced.

[This disease seldom attacks persons more than once ; but it has recurred occasionally in the same individual. Purgation is necessary after convalescence, and strict attention to symptoms when any prevail.]

The sequelæ of small-pox often prove fatal. Among these are inflamed pustules, abscesses, boils, suppuration of the joints, in the hip, knee, &c. ; blindness from opacity of the cornea ; development of tubercles in the lungs, laying the foundation of phthisis, mesenteric disease, scrofula, in the different parts of the body. Hence the prevention of all these diseases, by the discovery of vaccination, is justly considered, throughout the world, as one of the greatest improvements in medicine. The Royal Colleges of Physicians and Surgeons, and the Directors General of the Army and Navy Medical Boards, and heads of the profession, in all countries, recommend vaccination ; and if practitioners will only explain the effects of the above diseases to parents, few will require inoculation for small-pox.

There is less danger, however, induced by inoculation than by the spontaneous or natural small-pox, as the patient may be prepared for it by proper medicine. When parents insist on the varolous inoculation, we should mix the virus with vaccine matter, as the result will be, that vaccination will be produced and go through its course, and a modified small-pox with very few pustules will succeed it.]

[VACCINA, VACCIOLA.—COW-POX, KINE-POX, VACCINE DISEASE.

The benefits conferred on mankind by the discovery of vaccination, as a preventive of small-pox, are now universally admitted. If the virus is genuine and properly inserted by inoculation, the human body is most probably rendered free from the attack of small-pox. There are a few exceptions, but in general the case is as stated. The vaccine lymph should be inserted under the cuticle,

by three or four punctures, made near each other, in each arm. If the inoculation is properly performed, we observe on the second day small red spots which feel hard, but when viewed through a microscope are seen to be vesicular. On the third or fourth day the spots are larger and more perceptible, and on the fifth small pearly vesicles appear. These are surrounded by a crimson or pink areola, but sometimes not before the seventh or eighth day, when they become circular or annular, and the efflorescence is about an inch in diameter. The surface of the vesicle is uneven; there is a depression in the centre. On the ninth day the edges are elevated, and the rosy blush is increased, hard and tumid. At this period an erythema may extend over the arm, and sometimes over the whole body. About the ninth or tenth day the disease is at its height, and there is a slight degree of fever for a few hours. On the eleventh or twelfth day the areola, or rosy blush, diminishes; the centre of the vesicle is covered with a brown scab, which falls off in a few days, generally on the twentieth, leaving a deep mark, or indentation, on the skin, of a circular form, about an inch in diameter, with as many pits as there were cells in the vesicle. Unless all these symptoms are observed, a spurious cow-pox has been communicated, and re-inoculation is absolutely necessary.

The best time for taking the matter is on the eighth day, and from that to the twelfth, but after this time it cannot be depended on; or if any cause, such as friction or injury, has disturbed the progress of the vesicle. The disease will not be properly communicated should there be a chronic eruption on the arms; if scarlatina, measles, or other cutaneous diseases supervene; or if dentition, disordered bowels, or any other malady be present at the time of inoculation.

It is said by a few, that vaccination, however genuine, does not render the body insusceptible of small-pox; but this is contrary to the general opinion. Should the latter disease occur at any future period of life, it will be extremely mild, and very seldom prove fatal, though it may leave pits or scars. How few cases do we now observe of deformity of the face from small-pox, a fact that proves the great value of vaccination. When small-pox occurs after vaccination, it is milder, yet as contagious as if no vaccine inoculation had taken place.

Infants should be vaccinated after the sixth week. The only preparatory step to be taken is to open the bowels. There should be no cutaneous eruption on the arms, and no disease present at the time of vaccine inoculation. The best vaccinators prefer three or four slight punctures in each arm, and sometimes a single puncture in each; while others make as many as thirty, and others prefer longitudinal scratches with a lancet. When many punctures are made, the arm will become much inflamed, and sometimes ulcerates, and gives rise to great constitutional irritation. Such a practice is cruel and unnecessary. Sometimes boils, pustules, le-

prous and impetiginous eruptions succeed the vaccine disease ; but this seldom happens when the child's health is good at the time of vaccination. Such eruptions are readily cured by mercurial alteratives, hydr. c. creta, rhubarb, carbonate of iron, syrup of quinine, &c.]

VARICELLA.—THE CHICKEN-POX, SWINE-POX. BASTARD-POX, GLAND-POX.

SYMPTOMS.—After slight symptoms of fever, as lassitude, loss of sleep, wandering pains, loss of appetite, &c., an eruption appears ; first on the back, consisting of small reddish pimples, much resembling the first appearance of the small-pox. On the *second* day the red pimples have become small vesicles, containing a colourless fluid ; and sometimes a yellowish transparent liquor. On the *third*, the pustules arrive at their full maturity, and, in some instances, very much resemble the genuine small-pox. Soon after, the fluid becomes extravasated by spontaneous, or accidental, rupture of the tender vesicle, and a thin scab is formed at the top of the pock, without pus ever being formed, as in the true variola. Generally before the *fifth* day the whole eruption disappears, and [in general] no cicatrix or mark is left behind [though rarely the pits are as deep as those of small-pox.]

DIAGNOSIS.—*From variola.*—By the small degree of fever ; by the pimples first appearing in the back ; by no suppuration taking place ; by the pustules falling off, in scales, about the fifth day ; at which period the eruption in variola is only just completed.

PROGNOSIS.—It is entirely free from danger, unless the eruption be of the confluent kind, when it is to be appreciated from the degree of violence of the concomitant fever.

TREATMENT.—This complaint is of so trivial a nature, as seldom to require the aid of medicine. Gentle cathartics are all that are in general necessary. Should there be accidentally much fever, the means may be employed for moderating it that are recommended in small-pox.

MORBILLI OR RUBEOLA.—THE MEASLES.

SPECIES.—1. *Rubeola vulgaris*, with small, confluent, clustering pimples, hardly elevated, [and of a crimson colour.]

2. *Rubeola variolodes*, with distinct and elevated pimples.

A much better distinction, however, is into inflammatory and putrid.

SYMPTOMS.—1. *The benign or inflammatory.*—Synocha ; cough ; hoarseness ; difficulty of breathing ; sneezing ; sense of weight in

the head ; nausea or vomiting ; dulness of the eyes ; drowsiness ; epiphora ; coryza ; itching of the face.

On the *fourth* day, small red points or papulæ appear, first on the face, and afterwards successively on the lower parts of the body. They are generally in clusters, do not rise into visible pimples, but by the touch are found to be a little prominent.

On the *fifth* or *sixth* day, the vivid red is changed to a brownish hue : and in a day or two more the eruption entirely disappears, with a mealy [or furfuraceous] desquamation of the cuticle.

The febrile symptoms are not diminished upon the appearance of the eruption, but rather increase, and become attended with much anxiety and oppression of the præcordia, and symptoms of pneumonia. At the period of desquamation of the papulæ, a diarrhœa frequently comes on, and continues for some time. [The eruption may occur without catarrh (*rubeola sine catarrho.*)]

2. *The malignant or putrid.*—This form of the disease is accompanied with typhus fever, and the symptoms of putrescency, that are enumerated under the head of Typhus. The eruption appears more early, assumes a dark or livid hue, [*rubeola nigra,*] and all the symptoms above described are in an aggravated form. The fauces often assume the same appearance as in cynanche maligna, probably from a combination of the two diseases. And in some instances all the worst symptoms of malignancy supervene.

[This disease attacks in general but once, though it has recurred to the same individual after years.]

CAUSE.—Specific contagion.

DIAGNOSIS.—The pathognomonic symptoms which distinguish the eruptive fever of measles from variola and other diseases, are the dry cough and hoarseness ; the heaviness of the head and drowsiness ; sneezing ; coryza ; the appearance of the eyes, which are red, swelled, itchy, very sensible to light, and frequently loaded with tears. [It is distinguished from scarlatina, by its more crimson hue, and by the defined character of the patches ; from roseola, by the darker hue and more sudden appearance of the eruption, and greater severity of the symptoms.]

PROGNOSIS.—*Favourable.*—The febrile and other symptoms light ; moderate diarrhœa ; early and free expectoration ; a moisture on the skin at the appearance of the eruption.

Unfavourable.—A high degree of fever ; hot and parched skin ; hurried and difficult breathing ; flushed countenance ; unusually hard pulse.

The fever increasing after the appearance of the eruption, and assuming the form of typhus ; great pain in the head and eyes ; shooting pains in the chest ; symptoms of pneumonitis or cynanche ; no expectoration before the fourth day ; the pulse rapid and small ; delirium ; extremely anxious respiration.

The sudden disappearance of the eruption, succeeded by delirium : great anxiety ; laborious respiration ; acute pains in the chest, or

violent diarrhœa; the eruption becoming of a livid hue: a pallid appearance of the pimples, with great prostration of strength, small intermitting pulse, petechiæ, and other marks of putrescency.

Continued diarrhœa or vomiting.

TREATMENT.

Of the inflammatory species.

[Sydenham was the first who described the proper treatment of this disease.]

Indications.—I. To diminish the inflammatory action.

II. To relieve urgent symptoms.

The first indication is to be attempted:—

1. By abstinence from animal food, and strict adherence to the antiphlogistic diet.

2. By placing the patient in a moderately cool atmosphere, the temperature of which should be regulated in a great measure by his own feelings, carefully guarding against any sudden change [or exposure to severe cold.]

3. By the common diaphoretics and refrigerants; more especially the saline ones.

4. By the occasional exhibition of saline aperients.

5. When the synochal febrile symptoms run high, and more especially when symptoms of local inflammation are present, recourse must be had to general and local bleeding.

Practitioners differ much with respect to the time at which blood-letting may be employed with the most advantage. Dr. Morton thinks it requisite as soon as the eruption is completed. Sydenham recommends it after the eruption has disappeared; but the practice in this respect should be regulated by the degree of the accompanying pneumonic symptoms, without attending to the particular period of the disorder, or the state of the eruption: this is the generally approved practice in the present day.

Where the inflammatory symptoms become urgent, with much anxiety, pain, and oppression at the chest, general bleeding cannot be dispensed with, unless there be a septic tendency in the system. Topical bleeding, under less urgent symptoms, may suffice.

6. By the application of blisters to the chest, in cases where the fever is violent, with delirium or pneumonic inflammation. [In bad cases ulceration or sloughing succeeds vesication.]

The second indication regards symptoms.

1. If the disease be accompanied by inflammation of the lungs, general and topical blood-letting must be enforced; with occasional purges and nauseating diaphoretics, as recommended for the cure of pneumonia, [provided there be no gastro-intestinal irritation, inflammation, or ulceration, which is often present in infants and children.]

2. Hoarseness, cough, and inflammation of the fauces, will be palliated by barley-water, with acacia gum; thin arrow-root; orgeat and water; the compound decoction of barley, or capillaire and water, taken in very small quantities and frequently, not cold, but with the chill just removed. The addition of a little nitre, or of a small quantity of lemon juice, will render them more palatable.

Inhaling the steam of warm water is also serviceable.

Mild opiates are occasionally useful against these symptoms, after the febrile action is abated; but when given before, they neither procure rest, nor an abatement of the cough.

R. *Misturæ Amygdalæ* f̄vj; *Potassæ Nitratis* gr. xv; *Syrupi Papaveris* f̄ss: *Misce*: *ejus sumat æger cochleare medium urgenti tusse.*

An opiate, given at bed-time, should always be combined with a saline diaphoretic.

3. When diarrhœa does not take place towards the resolution of the disease, a purge or two of the submuriate of mercury should be administered.

4. Where diarrhœa is excessive, astringents and opium are necessary.

R. *Misturæ Cretæ* f̄vj; *Syrupi Papaveris* f̄vj: *Fiat mistura, ejus capiat æger cochlearia duo magna post singulas sedes liquidas.*

R. *Confectionis Aromaticæ* ʒj; *Misturæ Cretæ* f̄xij; *Pulveris Ipecacuanhæ* gr. j: *Fiat haustus quartis horis sumendus.*

[For other astringent mixtures, see p. 80.]

Should the diarrhœa continue, and threaten great exhaustion, recourse must be had to the opiate confection, astringent clysters, and the more powerful astringent remedies recommended against diarrhœa.—See *Diarrhœa*.

5. If the symptoms manifest a tendency to a putrid or malignant form of disease, they must be treated accordingly, as directed in typhus.

Of the putrid or malignant species.

The treatment of malignant measles is similar to that of typhus fever: it requires the exhibition of mineral acids, cinchona, and red port wine. Delirium, pneumonic symptoms, cough, &c., must be treated as before recommended, except by bleeding, which is always contra-indicated when a septic state of the fluids or great debility is present.

When the eruption of measles disappears before the proper period, and convulsions, or great anxiety, or delirium, take place, the indications will be to restore the eruption to the skin. To effect this, recourse must immediately be had to the warm bath, blisters [or sinapisms] to the chest and feet, the administration of warm dilute wine, camphor and æther, or antimony and diaphoretics.—See p. 81.

[When convalescence commences, the diet should be nutritious, the bowels regulated, the dress warm to prevent pulmonic inflam-

mation, which often occurs, excites tubercles, and lays the foundation of consumption.]

SCARLATINA.—SCARLET FEVER.

SPECIES.—I. *Scarlatina simplex*, not accompanied with sore throat.

2. *Scarlatina cynanchica*, with ulcerous sore throat.

3. *Scarlatina Maligna*, with sloughing.

SYMPTOMS.—*Scarlatina simplex*.—Synocha or synochus. About the *fourth* day, the face begins to swell, and a rash, of a vivid red colour like that of the boiled lobster-shell, appears scattered throughout the skin, which at length coalesces, and after three days disappears, leaving a desquamation of the cuticle, which falls off in branny scales, and is occasionally succeeded by anasarca. [The tongue, fauces, eyelids, nostrils, and cheeks, are also of a deep red colour.]

Scarlatina cynanchica [*vel anginosa*.]—Lassitude; dejection of mind; pain in the head, followed by soreness, with sense of straitness in the muscles of the neck and shoulders; rigor; horror; and other symptoms of typhous pyrexia.

On the *second* day, difficulty of swallowing; hoarseness; loss of appetite; nausea, and often vomiting; hurried respiration, interrupted by frequent sighs; the breath is hot and burning to the lips; great thirst; hot and dry skin; small pungent pains, as if occasioned by the point of a needle; quick, weak, sometimes hard, pulse; [croupal respiration, which may cause suffocation.]

On the *third* day, the face, neck, and breast, appear redder than usual; or scarlet stains, or patches, are observed about the mouth and nose; the submaxillary glands are enlarged and painful to the touch; the velum pendulum palati, the uvula, the tonsils, and pharynx, as far as the eye can reach, partake of the general redness. Collections of thick mucus, and specks, are often observed, much resembling the sloughs in cynanche maligna; yet real ulceration seldom takes place. [The papillæ of the tongue are elongated and elevated, the organ itself is very red, the inflammation may extend along the mucous membrane of the fauces, nostrils, and Eustachian tube, and be followed by purulent discharge from the nostrils and ears.] The redness in a few hours becomes universal over the body, and increases to a great degree of intensity. It disappears upon pressure; is perfectly smooth to the touch; nor is there the least appearance of pimples or pustules.

On the *fifth* or *sixth* day, the intense scarlet gradually abates; a brown colour succeeds; when the skin, becoming rough, peels off in small scales; and the patient begins to recover strength and appetite. Not unfrequently, however, after a few days' amendment, an unaccountable languor and debility is felt; stiffness in the

limbs; accelerated pulse; disturbed sleep; disrelish for food; scarcity of urine; dropsical swellings; sometimes anasarca alone; sometimes combined with ascites, or hydro-thorax.

CAUSE.—Specific contagion.

DIAGNOSIS.—*From measles*.—By the absence of cough, epiphora, sneezing, and coryza; by the appearance of the eruption; its greater extent; its not being elevated into pimples; by the affection of the throat.

From erysipelas.—See Erysipelas.—p. 133.

From cynanche maligna.—By the disease being more inflammatory—the other accompanied with distinct typhus fever; by the absence of sloughs in the one—by their presence in the other. The following are the chief of the more minute distinctions:—Scarlatina prevails in the summer and autumn, and attacks the vigorous and robust; cynanche maligna in the spring and winter, and more frequently attacks the weakly and delicate. The skin in scarlatina is of a bright scarlet, smooth, and usually dry and hot; in cynanche it is red, pimply—the pimples being redder than the interstices, and bedewed with water. Scarlatina terminates upon the third, fifth, eighth, or eleventh day; the termination of cynanche maligna is irregular.

[Scarlatina cynanchica, and cynanche maligna, are, however, considered by most people in the present day, as the same disease; the latter being only a more malignant form of scarlatina.]

From variola.—The eruptive fever of variola is distinguished from the above by the pain of the stomach, upon pressure, and other symptoms elsewhere enumerated.—See p. 140.

PROGNOSIS.—*Favourable*.—The concomitant fever purely inflammatory; remission of the febrile symptoms, and of the affection of the throat, upon the appearance of the eruption; the eruption appearing late; hæmorrhage from the nose of a florid red colour.

Unfavourable.—The eruption being preceded by great anxiety, nausea, vomiting; the fauces of a dark red or purple colour, without swelling; ash-coloured or brown specks, soon becoming ulcerated; great prostration of strength; delirium; coma; the eruption appearing as early as the second day; its coming out in patches is more unfavourable than an universal efflorescence; or not appearing at the usual time or for several days afterwards, when cerebral congestion may suddenly come on and prove fatal. In bad cases, the lips and genitals may mortify or become gangrenous. On dissection, the fauces, larynx, and trachea are found inflamed, ulcerated, or gangrenous. When these symptoms appear, the disease is called scarlatina maligna; the fever continuing after the period of desquamation; glandular swellings; anxious difficulty of breathing, and peculiarly stridulous voice, indicating the extension of the disease to the larynx and trachea; acute pain in the ear, with deafness; the saliva tinged with blood of a dark colour.

lour; discharge of acrid matter from the nose; running from the ears; skin continuing obstinately dry; the desquamation followed by a fresh efflorescence and increase of fever; diarrhœa. [The parotid, sub-maxillary, salivary, and cervical glands may inflame and suppurate, or congestion or inflammation of the brain or lungs may be superinduced.]

TREATMENT.—All that will in general be requisite in the treatment of scarlatina simplex, when it does not show any malignancy, is to keep the patient in a moderate and equable temperature, about 60° of Fahr. is mostly agreeable and beneficial: to preserve the apartments clean and open; to enforce a light diet without animal food; to direct cooling acidulated liquors for common drink, and to administer gentle aperients, more particularly towards the decline of the eruption.

Scarlatina cynanchica.—The cure of this, in addition to the regimen above prescribed, is to be conducted by,

1. The early exhibition of an *emetic*.—See p. 80:
2. Or a purge of submuriate of mercury.

The bowels are to be stimulated occasionally by aperients; and two or three grains of the submuriate of mercury, with as much antimonial powder, have been usually more serviceable than other aperients. [Leeches, sinapisms, warm turpentine or blisters should also be applied to the throat, and venesection in bad cases. Some object to venesection, as typhus may supervene; but unless we subdue violent inflammation in the first instance, there may be impeded respiration, congestion of the brain, convulsions, the most malignant typhoid symptoms, and death.—See *Cynanche Maligna*.]

3. *Cold affusion*, or frequently sponging the body with vinegar and water, is strongly recommended by some, when the heat of the body is much, and steadily, above the natural degree. And when due attention is paid to the proper way of employing this remedy, its beneficial effects are experienced: [but it may cause repression of the eruption; tepid bathing every second day, or daily, with cold to the head, while the body is in the bath, is useful.]

Dilute æther, acetic acid, alcohol, eau de Cologne, are also equally good.

4. The regular administration of dilute *acids*, with light preparations of the *tonic* and *antiseptic* barks and roots.—See Synochus.

5. The frequent use of acidulated gargles. [The chlorides of lime or soda are the best.—See p. 38 and *Cynanche Tonsillaris*, *Cynanche Maligna*.]

R. Aquæ Hordei fʒviij; Acidi Hydrochlorici, Acidi Nitrici, aa m℥x; Mellis Rosæ fʒj: Fiat gargarisma.

6. Where delirium, coma, or difficult deglutition [or respiration] supervene, *blisters* between the shoulders, and to the external fauces. [Anasarca, or desquamation of the cuticle all over the body, may supervene, and the latter is detached from the hands and feet in one entire piece, representing the fingers of a glove in the first case, and a sock in the other.]

7. At the decline of the eruption tonics are required, especially [quinine] cinchona, or cascarilla; a nutritious diet also, with wine.

Every case of scarlatina, in which there is typhus pyrexia, or a malignancy present, at whatever period it may happen [is a highly dangerous disease, and] requires the employment of cordial tonics, acids, and wine, in large and repeated doses, as recommended for the cure of typhus gravior and cynanche maligna. When the throat is covered with sloughs, stimulating and astringent gargles must be used very often. Such as are prescribed for Cynanche maligna.

The Cayenne-pepper gargle is very efficacious.

The application of blisters is indicated in most cases where there is external tumefaction; petechiæ, or vibices, or coldness in the extremities, alone contra-indicate their use. When applied under a great tendency to putrefaction, or great debility, they sometimes become gangrenous, [in which case the treatment for the last stage of typhus will be necessary.—See p. 81—87, &c.]

Bleeding, formerly much employed, is now altogether abandoned, and considered as likely to produce the most destructive consequences; so purging violently is found prejudicial from its debilitating effects. [This is correct as to the malignant, but not as to the anginal species.]

The doses hitherto directed are for adults; for children reduced doses must be prescribed.

Children sometimes are with difficulty prevailed upon to gargle and take the medicines; when they refuse, the gargle must be used by means of a syringe, and syrup of bark may be given largely, [or by means of some sponge or lint tied on a piece of wood or whalebone, and passed into the fauces.*]

When anasæra, ophthalmia, pneumonia, cerebral affections, or other diseases succeed scarlatina, they are to be treated on ordinary principles. Purgation, tonics, nutritious diet, warm clothing, and cautious avoidance of exposure to cold or damp must be employed and observed after recovery from this disease.]

ERYSIPELAS.—ST. ANTHONY'S FIRE.

SPECIES.—I. *Erysipelas vesiculosum*, attended by large vesications.

II. *Erysipelas plilyctænodes*: the shingles; inflammation; producing crops of small vesicles not larger than a lentil.

III. *Erysipelas infantum*: appearing on infants.

SYMPTOMS.—Rigors, and other symptoms of pyrexia; great con-

[* Medicines may be given in sherry, or porter and water, or properly sweetened; and there is now a covered spoon, by means of which they may be administered without being spilled.]

fusion of the head, sometimes amounting even to delirium ; coma ; nausea ; vomiting ; quick, hard pulse ; strong, or small, as the fever may incline to the inflammatory or typhus kind. About the *second* or *third* day, the skin of a particular part of the body becomes inflamed ; soon after, an efflorescence appears of a florid red colour ; at first of no great size, but gradually spreading, at length occupies a large extent of surface.—Considerable tumor, and a peculiarly acrid heat of the inflamed parts ; when the face is the seat of the disease, the whole hairy scalp becomes affected, [sometimes the brain and its membranes are inflamed,] and the eyes are frequently closed by the tumor of the palpebræ ; as the redness extends, it frequently leaves, or is abated in, the parts at first occupied. After a longer or shorter time the efflorescence terminates in phlyctænæ, which are small watery vesicles the size of lentils ; or in vesicles, or in a desquamation of the cuticle ; the fever, however, does not always, at this period, suffer a remission ; but is frequently aggravated by increase of coma, or delirium, and the patient expires about the ninth or eleventh day.

[Recovery has happened when these symptoms were present, and by the use of ardent spirits.—See Sir A. Cooper's Lectures. The disease may extend to the cellular tissue or attack the head ; when it requires as active treatment as phrenitis.]

CAUSES.—*Predisposing.*—Choleric-sanguine temperament ; plethoric habit ; previous affections of the same nature.

Exciting.—Cold ; excessive heat, or vicissitudes of temperature ; abuse of fermented liquors ; suppressed evacuations, or other causes inducing plethora ; the presence of irritating matter in the primæ viæ ; more especially of acrid bile.—Contagion ? [rather infection, see p. 119.]

PROGNOSIS.—*Favourable.*—The fever purely inflammatory : the eruption of a bright scarlet or red colour ; not extending over a large surface ; no vesications ; the fever and coma diminishing upon the appearance of the efflorescence ; and this, soon after, assuming a yellowish hue, with an abatement of the swelling.

Unfavourable.—The fever assuming the typhoid form ; its being protracted to the seventh, ninth, or eleventh day, with increase of coma, and delirium ; the inflammation becoming of a dark rose colour ; its suddenly receding from the surface, and attacking an internal part ; its extending over a large surface, without leaving the part it originally occupied ; livid vesications ; weak, rapid, irregular pulse ; great prostration of strength : early coming on of coma ; the disease being epidemic ; the constitution of the patient originally weak, or emaciated by previous illness ; the disease being combined with dropsy, jaundice, or other affections, originating in a depraved organ.

TREATMENT.—*Indications.*—I. To reduce the phlogistic diathesis, if the fever be of the inflammatory kind, [or the head, chest, or abdomen affected by metastasis.]

II. To support the strength of the patient, if it assume the typhoid form. And,

III. To obviate the tendency to a determination to the head or other important organs.

The phlogistic diathesis, if present, is to be reduced,

1. By *bleeding*.—This operation is, however, to be adopted with the greatest care, for it seldom happens, that the fever is purely inflammatory, but mostly mixed, having strong synochal symptoms in the beginning, and running soon into typhoid.

Local blood-letting is never serviceable, for gangrene mostly takes place where the skin is penetrated. [This is not correct, as leeches are now applied in our hospitals with benefit.]

When the subject is young, in the country, and the constitution has not been impaired, and the symptomatic fever high, the lancet may be resorted to with advantage; and, on the other hand, a young subject, accustomed to the air and living of a large town, and more especially if the constitution has an obvious cachexia, the abstraction of blood would favour the speedy change from an apparently inflammatory into a typhoid state of the febrile symptoms. [When the disease attacks by metastasis the organs in any of the three splanchnic cavities, depletion is necessary.]

2. By cooling or mercurial *purges*.—These are extremely serviceable: the submuriate of mercury is to be administered in doses of from three to five grains, with rhubarb or any aperient, [especially when there is biliary derangement.]

3. By nauseating *diaphoretics*: especially tartarized antimony, acetate of ammonia, and camphor.—See Synochus, p. 95.

When the synochal symptoms are degenerating into typhoid, large doses of camphor are highly beneficial.—See p. 92.

4. By *dilutents*: as acidulated soda-water, lemonade, tamarinds with water, and the like.

To support the strength of the patient, when erysipelas assumes the typhoid character, recourse must be had to wine, Peruvian bark, opium, and mineral acids.—See Typhus, p. 36.

These remedies are to be exhibited in the same way as recommended in the cure of typhus.

The treatment of erysipelas will vary, therefore, according to the type of the fever with which it is attended. If it be well-marked synocha, which it seldom is, the usual means of diminishing inflammation are to be resorted to; and, above all others, the frequent exhibition of mercurial purges. If, on the contrary, it possess the character of typhus, and manifest symptoms of malignancy, [quinine,] Peruvian bark, wine, mineral acids, and other remedies of the invigorating kind, enumerated under typhus, are to be relied on.—See p. 36, &c.

In cases of coma and delirium, much relief will be afforded by the semicupium, together with the application of sinapisms to the feet, [mustard pediluvia,] or a blister between the shoulders.

The topical applications resorted to by surgeons are various.

1. Dry absorbent powders, to take up any aerimomious fluid that may be oozing out, as starch, meal, chalk, litharge.

2. Warm spirituous fomentations.

3. Cold spirituous applications to young habits, where the inflammatory action is strong.

R. Liquoris Ammoniae Acetatis, Aëdi Aetici, Spiritus Tenuioris, aa $\tilde{f}\tilde{3}j$; Aquæ puræ $\tilde{f}\tilde{3}ix$: Misce pro lotionē.

R. Misturæ Camphoræ $\tilde{f}\tilde{3}vj$; Liquoris Ammoniae Acetatis $\tilde{f}\tilde{3}ij$: Misce pro lotionē.

[In phlegmonous erysipelas, the part is either punctured or moderately incised with advantage. When the brain is congested or inflamed, we employ incisions, &c., as in phrenitis. When erysipelas is gangrenous, we use tonics, antiseptics, chlorides or chlorures of lime and soda, both internally, [see p. 89.] quinine, fermenting poultices, and the ordinary treatment of this last disease. Should suppuration occur, the abscess must be timely opened: and erysipelas will be prevented from extending by applying nitrate of silver around it.]

MILIARIA.—MILIARY FEVER.

SYMPTOMS.—Synoehus; oppression, and sense of tightness about the præcordia; the breathing becomes laborious, and is interrupted with frequent sighs, or teasing cough, while the spirits are oppressed with unusual sadness and timidity.—As the heat increases, there is a sense of pricking or itching in the skin, which Vogel says is also sometimes felt in the bowels; numbness in different parts of the body; *profuse sweat*, of a sour, rank odour, during which there is often a contracted pulse.—On an *uncertain day*, a number of small red papulæ, about the size of millet-seeds, are observed first upon the neck and breast, and thence gradually extending to the trunk and extremities; their prominence is imperceptible to the sight, yet evident to the touch; they often lose their redness, and appear of the ordinary colour of the skin.—After *ten or twelve hours*, a small vesicle appears upon the top of each: this at first is of a whey colour, but afterwards becomes white.—At other times, the pustules retain their red colour, which has given rise to the division into the white and red eruptions; they generally appear separately; sometimes, however, they are intermixed; in both, the matter, contained in the vesicles, has a peculiarly offensive smell. In *two or three days* the vesicles break, and are succeeded by small crusts, which fall off in scales.

CAUSES.—*Predisposing*.—Lax habit of body; sanguine temperament; childhood; the female sex; the period of childbirth; old age; preceding affections of the same disease; debility, however induced; excessive evacuations; long-continued and copious menstruation; fluor albus; the presence of irritating matter in the primæ viæ; abuse of tea-drinking.

Exciting.—Immoderate sweating, produced by excessive heat,

or by heating medicines. [Too much bed clothes and warmth in the puerperal state.]

DIAGNOSIS.—The uncommon anxiety and dejection of mind ; the profuse sweating ; its peculiarly foetid, rank smell. Afterwards, the appearance of the eruption.

PROGNOSIS.—*Favourable.*—The fever inclining more to the nature of synocha than typhus ; remission of the symptoms upon the appearance of the eruption ; the papulæ of a florid red colour.

Unfavourable.—The sweating obstinately continuing after the eruption of the papulæ, with increase of fever ; great anxiety ; flaccidity of the parts covered by the eruption ; profound coma ; difficulty of breathing ; dejection of mind ; the sudden disappearance of the eruption, followed by great prostration of strength, anxiety, difficult respiration, violent vomiting, delirium, convulsions ; the appearance of petechiæ, interspersed among the papulæ ; the symptoms of putrescency elsewhere enumerated ; rapid, weak, and intermitting pulse ; anasarca swellings.

TREATMENT.—*Indications.*—I. To diminish the immoderate heat and sweating.

II. To support the strength of the patient, where there are concomitant symptoms of great debility.

The first indication will be accomplished,

1. By the cautious application of *cold* ;—the air of the bed-room should be cooled, and part of the bed-clothes removed ; the patient desired to lie with his arms exposed.

2. By gentle *cathartics*, if the debility be not great ; neutral salts are to be preferred. When these are inadmissible, the union of rhubarb with submuriate of mercury.

3. By mineral *acids* ; especially the sulphuric, which may be given in the infusion of roses, or with decoction of bark [or quinine.]

The second indication requires,

Bark and wine ; opium ; blisters ; and the other means proper for typhus fever.

Should a retrocession of the eruption take place, followed by the alarming symptoms above mentioned, musk, camphor, opium, blisters, and frictions to the skin ; endeavouring, by every means, to bring out and support a copious diaphoresis ; external warmth ; powerful diaphoretics, &c. [Washing the skin with a solution of chloride of lime is the best means of checking this disease.]

URTICARIA.—NETTLE-RASH.

CHARACTER.—An eruption resembling that produced by the stinging of nettles, whence its name. These little elevations often appear instantaneously, especially if the skin be rubbed or scratched, and seldom stay many hours, sometimes not many minutes, in the

same place ; but vanish, and again make their appearance in another part of the skin. The parts affected with the eruption are often considerably swelled. In some persons the eruption lasts a few days only, in others many months, appearing and disappearing at intervals. Long weals are sometimes observed, as if the part had been struck with a whip. The little eminences always appear solid, not having any cavity or head containing either water or any other liquor. Intolerable itching is their invariable concomitant. They generally disappear in the day-time, and in the evening again break forth, accompanied with slight symptoms of fever. They terminate in a desquamation of the cuticle.

CAUSE.—Mechanical irritation ; [use of shell-fish, lobsters, museles ; mushrooms ; honey ; and by infants deteriorated breast-milk.]

TREATMENT.—Frequent cooling aperients ; small doses of the submuriate of mercury ; nitrous acid ; sudorifics ; the antiphlogistic regimen ; but remedies are seldom needed in so trivial a complaint.

R. Acidi Nitrici Diluti $\text{f}\overline{\text{ss}}$; Syrupi Mori $\text{f}\overline{\text{ss}}$ j ; Aquæ destillatæ $\text{f}\overline{\text{ss}}$ xij ; Miscæ pro potu ordinario.

When a chronic disease, it yields, occasionally, to serpentaria, [and alterative doses of mercury.]

R. Radicis Serpentariæ Contusæ $\overline{\text{ss}}$ j ; Aquæ Puræ $\text{f}\overline{\text{ss}}$ xvj : coque per quadrantem horæ, dein cola :

R. Hujus decocti colati $\text{f}\overline{\text{ss}}$ xij ; Tincturæ Serpentariæ, Syrupi Aurantii, aa $\text{f}\overline{\text{ss}}$ j : Fiat haustus ter in die sumendus.

PEMPHIGUS.—VESICULAR FEVER.

SYMPTOMS.—The usual symptoms of the cold stage of fever ; lassitude, headache, sickness, oppression, frequent pulse, in some instances delirium.

On an *uncertain day* an eruption of small pellucid blisters, similar to those produced by burning ; varying in size, sometimes as large as walnuts, more frequently about the size of almonds ; surrounded by an inflamed margin, or areola, and distended with a faintly yellow serum. They appear on the face, neck, trunk, arms, mouth, fauces, and sometimes extend along the whole alimentary canal ; producing great difficulty of deglutition ; pain referred to the stomach ; nausea ; frequent vomiting ; sense of soreness in the abdomen ; often bloody stools.

After the blisters have remained from one to several days, they either break, and discharge a yellowish, bland, or sharp ichorous fluid, or they begin to shrink, and in a short time disappear.

CAUSES.—Specific infection ? This is yet undetermined : many contend that the ordinary causes of synocha and synochus will produce it : whilst others maintain, that the disease is infectious,

and arises from its peculiar poison. Most probably, the vesicular, like other eruptions, appears both in fevers which are, and which are not, infectious; so that the eruption will sometimes be propagated with the fever, and sometimes without it.

DIAGNOSIS.—The peculiar appearance of the eruption.

PROGNOSIS.—*Favourable.*—The vesicles few in number, and confined to external parts; the fever inclining more to the inflammatory than to the typhoid character.

Unfavourable.—The disease attacking the alimentary canal, attended with a rapid, small pulse; symptoms of confirmed typhus; the vesicles becoming livid, with sudden and great prostration of strength; delirium.

TREATMENT.—Added to the treatment proper for the concomitant fever, which is very generally an approximation to typhus: An emetic at the commencement.

Submuriate of mercury in small and frequent doses.

Saline purges.

Antimonium tartarizatum, in small and frequent doses.

The larger vesicles should be opened and kept clean.

Demulcent and detergent gargles, when the mouth and fauces become the seat of the disease.—See Aphtha.

To diminish the effects of irritation, opium combined with sulphuric ether. [Oleaginous applications, milk diet, aperients; and should gangrene occur, it is to be treated on ordinary principles; wine, quinine, broths, &c., will be necessary.]

[All diseases of the skin may be divided into two classes: first, those preceded by fever; second, those unpreceded by fever. The first class comprises all eruptive fevers; the second, all cutaneous eruptions without febrile action. The former are to be treated according to the type of fever, as variola, rubeola, scarlatina, &c. The latter, by improving the digestive system, and by mercurial and antimonial alteratives. In almost all cases the eruption will be removed by this plan, especially in children; and local applications are seldom necessary. In obstinate cases, the various ointments described in the Pharmacopœia, with warm and sulphurous baths, may become necessary. Most pathologists ascribed cutaneous diseases to irritation, inflammation, or ulceration of the gastro-intestinal mucous membrane.]

The following is my arrangement of Diseases of the Skin in my Lectures on the Practice of Medicine, and I propose the following terms to express them, which I hope are classically, as well as pathologically correct.

Diseases of the Skin.—Anatomy, physiology, and pathology of the skin; treatment in general of cutaneous diseases; various classifications of diseases of the skin, of Mercurialis, Lorry, Retz, Plenck, Derien, Wilson, Willan, Bateman, Plumbe, Dendy, Alibert, Paget, Rayer, Bielt, Cazenave and Schedel, Green; lecturer's new classification. I. Dermatitis. II. Dermohæmorrhagiæ.

III. Dermoneuroses. IV. Dermachromata, Dermoachroia, decolorations. V. Dermodyschroia, dyschroia, maladermia, discolorations. VI. Dermocaccocerises, abnormal states of perspiration. VII. Dermocryptocoses, tumours of the cutaneous cryptæ or follicles. VIII. Adermata, congenital absence and defects of conformation and tissues of the skin.

Diseases of the appendages of Skin.—Onychonosology, description of diseases of the nails; onyxis, onychia; onychohæmorrhagia, subungual ecchymosis; onychensarcia, the nail growing into the flesh; onycopthoria, morbid alterations of the nails; abonychia, absence of the nails; onychoptosis, fall of nails; polyonychia, supernumerary nails; onychophyma, tumefaction or enlargement of the nails; onychogryptosis, curvature of the nails; onychodyschroia, accidental colouration of the nails.

Diseases of the Hair.—Trichonosology; trichomatitis, inflammation of the hair; plica Polonica; canites, trichodyschroia, decolouration; alopecia, baldness; atrichomata, absence of the hair; polytrichomata, supernumerary hairs; trichiasis, vicious direction of the hair.

Anomalous diseases connected with the Hair and Skin.—Trichodermo-ataxopathy; phthiriasis, morbus pedicularis; pediculi: pullex; acarus scabiei, itch insects; sarcoptes, flesh worms; æstrus; astromus; elephantiasis; lepra; Barbadoes leg; Cochin leg.

DEFINITIONS:—DERMATITES. INFLAMMATIONS OF THE SKIN.

1. *Exanthemata. Rashes with Fever.*—Circumscribed or diffused with redness, red patches, with or without interspersed papule (pimples) or vesiculæ (small blisters,) between which the skin is of a natural colour; terminating by resolution, delectescence (sudden disappearance,) desquamation or exfoliation of the cuticle.

This order comprises six genera—erythema, erysipelas, rubcola, scarlatina, urticaria, and roseola.

2. *Vesiculæ. Vesicles.* Small serous transparent elevations of the epidermis, or cuticle, becoming opaque or purulent, differing from bullæ, by their smaller dimensions. The effused serosity is deposited between the epidermis and subjacent reticulated body (rete mucosum.) These small blisters may be absorbed or effused, if ruptured, on the surface of the skin; and they are sometimes succeeded by a small, thin, lamellated crust or exfoliation, or by superficial excoriations.

The genera of this order are the sudamina or miliary eruptions, herpes, zona, psora or itch, varicella, and eczema.*

3. *Bullæ. Blebs.*—Small aqueous tumours caused by an effusion

* Willan includes in this order, variola (small pox,) vaccina (cow pox,) varicella (chicken pox;) but Biett, Rayer, and Green much more properly place these among the pustulæ.

of serosity between the epidermis and subjacent rete mucosum, succeeded by a crust, or sometimes by superficial ulceration.

The genera of this order are, vesicatoriæ, ampullæ, pemphigus, and rupia.

4. *Pustulæ. Pustules*.—Elevations of the cuticle, formed by the effusion of pus or matter, or a fluid not serous, between the cuticle and inflamed body (Rayer,) or on the surface, or into the substance of the skin (Green.) Pustules dry more slowly than vesicles, form hard, thick crusts or scabs, which may be horny, friable or pulverulent, and frequently cover indurations, excoriations, or deep ulcerations. The varieties of pustules are:—

1. *Phlyzaciūm*, or a pustule of considerable size, surrounded by a hard circular base of a bright red colour, and succeeded by a thick, dark scab, or incrustation.

2. *Psyltraciūm*, or a small pustule, slightly elevated, surrounded by a pink efflorescence, its base often irregular, or but faintly marked, sometimes confluent and terminating in a thick laminated circular incrustation.

3. *Achor*, or a small acuminated pustule, filled with straw-coloured gelatinous fluid, surrounded by an irregular efflorescence, but marked between it and its base, by a faint interspace, usually confluent, terminating in a thin light brown irregular crust.

4. *Facūs*, or an irregular pustule of a large size, scarcely elevated, containing a more viscid straw-coloured fluid, surrounded by a rose-coloured base, terminating in a yellow, semi-transparent, or cellular crust, and sometimes by superficial ulceration.

The genera of this order are variola, vaccina, vaccinella, ecthy-ma, cuperosa, mentagra, impetigo or running tetter, tineæ, porrigo, and acne or stone pox.

5. *Papulæ. Pimples*.—These are small, firm elevations of the cuticle, caused by an increased action of the papillæ, containing no fluid in their centre, with a base more or less inflamed, seldom suppurating, terminating usually in scurf, and attended with intense itching. They generally terminate by resolution or desquamation of the cuticle, and very rarely by ulcerations.

The genera of this order are, strophulus, or the red gum, white gum, and tooth rashes, so called by nurses, lichen, and prurigo.

6. *Tubercula. Tubercles*.—These are small, hard, solid circumscribed tumours, larger than papulæ, with or without an inflamed base, permanent or persistent, imbedded in the skin, terminating in resolution, partial suppuration, or destructive ulceration.

The genera of this order are, lupus, cancer, elephantiasis of the Greeks, molluscum, and fimbriæ.

7. *Furunculi. Boils*.—Solid tumours, larger than tubercles, caused by inflammation of the cellular processes or elongations, which enter into the areolæ of the derm or true skin.

The genera of this order are, furuncle or boil, anthrax or carbuncle, and hordeolum or sty.

8. *Squamæ. Scales*.—These are indurated, opaque, whitish or yellowish laminae or lamellae of the cutis epidermis, caused by the inflamed reticular body, or are continually being detached from, and renewed on, the surface of the skin.

The genera are, lepra or leprosy, psoriasis or scaly tetter, pityriasis or dandriff, and, according to Willan, ichthyosis or fish skin disease. Bielt, Rayer, Green, and other late writers, maintain that the last disease is not caused by inflammation of the rete mucosum. derm, or true skin, but depends on an usual thickness of the cuticle. They object to its being placed among the inflammatory diseases of the skin. Nevertheless, it bears the closest resemblance to the other squamous or scaly diseases.*

9. *Fissuræ. Fissures*.—These are lineal cracks of small depth, and seldom extend to the whole thickness of the skin.

10. *Maculae. Spots*.—Discoloration of the whole or a part of the surface of the skin, generally congenital and permanent. They may or may not be accompanied by general disorder of the system. This is the eighth order of Willan, Bateman, Bielt, Green, &c. : and its genera are—ephelis, sun spots or freckles; nævus or mother's marks; spilus or mole; and, according to Green, the albino state; vitiligo, or a partial degree of this state; cloasma or liver spot, and lentigo.

M. Rayer excludes this order, and describes the diseases referred to under the title, "Alterations in the Colour of the Skin." He describes these as follows:—

11. *Gangrenæ. Gangrenes*.—Malignant pustule, bubo of the plague.

Decoloration. Leucophthia.—1, partial, 2, general chlorosis. *Accidental Colorations*.—Ephelis, lentigo, chloasma, maladermis, icterus, nævus maculosus; bronze tint, caused by the internal use of nitrate of silver, (lunar caustic.)

12. *Multiformes. Multiform*.—Burns, frost-bite, syphilitic eruptions.

* Two cases of this disease have lately fallen under my observation. The subjects were brother and sister, but they were not born consecutively. Both resembled the father in moral and physical constitution more than the mother. The girl was most affected on the knees, and anterior part of the legs. The boy was diseased on the trunk and superior extremities. The children born between them were free from disease. On inquiry, I learned that the father suffered from dandriff, and that his parent had laboured under ichthyosis. Both the boy and girl were cured by aperients, tonics, and the external application of hydriodate of potass in the proportion of one drachm to each ounce of prepared lard. Several students observed these cases at the Metropolitan Free Hospital.

Ulcers are excluded from this classification, because they never constitute a primary alteration. "They always succeed subcutaneous abscess, vesiculous, pustulous, or tuberculous inflammations, &c. and the study of them cannot be separated from that of the different inflammations which produce them.

"All inflammations of the skin affect, more or less, the reticular body (*rete mucosum*) of this membrane; some affect the dermis itself, the sebaceous follicles, the bulbs of the hair, the interareolar cellular tissue of the dermis, and even the subcutaneous cellular tissue." (Rayer.) The various other tissues lately discovered by Breschet and Rousel, (1835) are of course equally liable to inflammation. (Their description is not as yet fully received.)

The functions of the different tissues may be deranged by inflammation; the transpiration or perspiration may be diminished, suppressed, or increased, the secretions of the sebaceous follicles and cuticle, the sense of touch deranged, and there is no doubt but the hair and nails may suffer morbid alterations.

Cutaneous inflammations may be general or local: general, as when they affect the whole surface of the skin, as, scarlatina, rubella, variola, &c.: local, or partial, as tinea, mentagra, &c., acute or chronic, and febrile or non-febrile, and may cause congestion, effusion, inflammation, or suppuration in the head, chest, abdomen, or joints, or their sudden repression may induce apoplexy, paralysis, asthma, and various other diseases.

CLASS II.—*Dermohæmorrhagiæ, Cutaneous Hæmorrhages, and Subcutaneous Congestions.*

When blood is accumulated in the substance of the skin, it is termed congestion.

When blood is effused on the surface, or into the substance of the skin; it is termed dermatic hæmorrhage.

The cause of either disease, is want of energy in the venous circulation. Thus, if a ligature is placed round a limb, the parts below it become red or livid, and swollen; and another familiar example is afforded by the tumefaction and redness of the soft parts under a cupping-glass. This state is also observed on the face and extremities in diseases of the heart, asphyxia of new-born infants, in pneumonia, &c., and on the face from vivid emotions. The causes may be temporary, intermittent or continued; but the diagnosis between congestions and exanthematous inflammations is very easily drawn.

Hæmorrhage from the skin, or dermatorrhagia, is a rare disease, except when the epiderm is raised, congested, or ulcerated. A simple illustration is afforded by the application of a blister to a surface from which the cuticle has been already removed. In this instance, the blood will be effused on the surface of the skin in the same manner as on that of a wound. Cutaneous hæmorrhage has

sometimes occurred in the course of visceral inflammations which are about to terminate fatally. The disease is so rare, that little can be said of its cause or treatment. Some of the older writers have slightly alluded to bloody sweat as an idiopathic disease. Fournier cites two cases of it (*Art. Cases rares Dict. des Sciences Medicales.*) It is said to appear on new born infants, and that the blood may be seen issuing from the surface of the skin without any alteration in the appearance or tissue of this part. Bichat and others considered that the disease might be idiopathic. It often appears in confluent small-pox, on extensive burns, eczema, pemphigus, &c. Rayer comprises, with reason, the following diseases under this head—ecchymoma (ecchymosis,) sugillatio, petechia (febris petechialis,) and purpura hæmorrhagica or hæmacclimose.

CLASS III.—*Dermoneuroses—Neuroses of the Skin.*

The skin is the organ of palpation, or touch. "The skin," says Rayer, "is the organ of general and passive tactility, by which is recognized the presence of bodies, and their temperature—is the seat of a peculiar and active sensation, (touch,) at several points in which it is provided with numerous nerves and vessels. The function of the skin may be modified, or abolished, without its texture having undergone any appreciable alteration."

Nosographers describe neuroses of vision, audition, olfaction, and gustation, or in other words, of sight, hearing, smell, and taste,—and why should there not be those of palpation or touch, or of the skin? Has not experience convinced every observant physician of the fact, that there may be excessive neuralgic pain, or total insensibility in every part of the skin? Paralysis affords us a familiar illustration of partial or total insensibility of the skin. Every part of it may be affected with abnormal or disordered sensation, excessive pain, numbness, sense of cold, creeping, &c. &c.; and our foreign contemporaries designate these morbid conditions, the hallucinations of the sense of touch. In all the innumerable neuroses or nervous affections of the skin, there is no unnatural or diseased appearance of this tissue. This multiform class of disorders are well known, for they are constantly met with; though their causes are, as yet, unintelligible. It is impossible to explain the causes of the numerous modifications or hallucinations of the sense of touch, or of the abnormal disorders of the skin. But their existence cannot be questioned or denied. In many visceral diseases, such as those of the liver, kidneys, uterus, &c. and in habitual constipation of the bowels, there may be great *exaltation of the sensibility of the skin* in some particular point: indeed, every part of the skin has at different times been in this condition, and unaccompanied by redness or any degree of inflammation, or of eruption.

In like manner, there may be *diminution or abolition of the sensibility of the skin* in any point of its surface. These disorders

have been termed *anæsthesiæ* by the older nosologists; and may exist with, or without, paralysis of the subjacent muscles. The discoveries of Sir Charles Bell, of M. Magendie, and Sig. Bellingeri, warrant the conclusion, that in a case without paralysis, the sensory, and not the motor filaments of the spinal nerves, are affected. Numerous examples are also on record, of loss of sensibility of the arm or lower extremity, though the power of motion continued unaffected. Paralysis of the skin depends on affections of the nervous centres, which must be vigorously combated to remove them.

CLASS IV.—*Dermachromata—Achromia, Decolorations.*

Absence of colour of the skin, depending on the want of the pigmentary secretion, or usual colouring matter of the rete mucosum, skin and hair, leucopathia, leucoethiopia, albinism, general whiteness, and chlorosis. (Rayer.) This disease may be general or partial congenital, or accidental.

When there is a partial colourless state of the skin, it is termed vitiligo.

CLASS V.—*Dermodyschroia Dyschroia, Maladermia, Discoloration.*

Discolorations of the skin are caused by different modifications of the pigmentary or colouring matter, as in ephelis, sunburn, lentigo, freckle, chloasma, or pityriasis versicolor, of Willan, or maculæ hepaticæ, or dandriff of others. They are also produced by the introduction of extraneous matters into the tissue of the skin, as in jaundice, artificial colorations, such as those induced by a long use of the nitrate of silver (lunar caustic); and lastly, the skin may be greatly discoloured, as in melanosis, and nævus, or mother's marks. Many of the last are more analogous to sanguineous tumours, such as the vascular and subcutaneous nævi, than to alterations of the colour of the skin.

CLASS VI.—*Dermocæccrises—Diaphoresis—Sudor—Perspiration.*

The morbid secretions of the skin are termed *ephidroses generales et locales, sudamina, miliaria, papulæ, sudorales, et sudoræ and hydronos, hydronosus, hydropyretus, sudor Anglicus, or sweating sickness*. Haller well observed, that there is disease of the perspiration: "*cstque sudor morbi genus.*" There may be chronic sweat, partial or general, on the feet, hands, neck, shoulders, breast, and about the groins, pudenda, and anus. The sweat may acquire a sour, rancid, fœtid odour, and one somewhat similar to that of musk. It may be changed in colour, and cases of black, green, blue, &c. sweat have been cited.—Sauvages? *Nosol. Method. Art. Ephidroses, Ephem. Curios.* Dec. 3, an. 7, 8, &c. Dec. 11, an. 1.

CLASS VII.—*Dermocryptocoses.*

Morbid tumours caused by secretions of the cutaneous cryptæ or follicles, including acne, of a ceruminous or waxy layer, somewhat similar to the white unctuous substance on the skin of new-born infants, vermiform bodies (grubs) folliculous tumours, (A. Cooper and B. Travers.) which have been denominated lipoma, meliceris, atheroma, and steatoma.

CLASS VIII.—*Adermata.*

Congenital absence and defects of conformation and texture of the skin—cutaneous and subcutaneous vascular vegetations and tumours, erectile tumours, molluscum, atheroma, steatoma, wen, verruæ, porri, or warts; mamellated excrescences, cornua, horny growths, clavi, bunions, callosities, indurations, tylosis or corns, cicatrix, scar, seam, healing of a wound or burn.

DISEASES OF THE APPENDAGES OF THE SKIN.

Onychonatology—Description of Diseases of the Nails.

GENERA I.—Onyxia, onychia, whitlow.

II.—Onychohæmorrhagia, onychensarcia, the nail growing into the flesh, subungueal ecchymosis.

III.—Onychophthoria; morbid alterations of the nails, abonychia; absence of the nails.

IV.—Onychoptosis; falling off of the nails.

V.—Polyonychia; supernumerary nails.

VI.—Onychophyma; tumefaction, or enlargement of the nails.

VII.—Onychogryptosis; curvature of the nails.

VIII.—Onychodyschroa; accidental coloration of the nails.

TRICHONOSOLOGY.

Description of Diseases of the Hair.

GENERA I.—Trichopathy; diseases of the hair.

II.—Trichomatitis; inflammation of the hair.—Plica polonica; also, matting of the hair.

III.—Canities; hoariness.

IV.—Trichodyschroia; decoloration of the hair.

V.—Alopecia; baldness.

VI.—Atrichomata; absence of hair. Calvities senile; fall of the hair.

VII.—Polytrichomata; supernumerary hairs. Trichiasis; vicious direction of the hair.

TRICHO-DERMOATAXOPATHY.

Anomalous Diseases connected with the Hair and Skin.

Phthiriasis ; morbus pedicularis.

Pediculi.

Pulex.

Acarus scabiei, sarcoptes ; flesh worms ; itch insects.

Æstrus, astromus.

Elephantiasis, lepra ; Barbadoes leg : Cochin leg.

These terms are new, and perhaps will be objected to by the superficially informed ; but the erudite, whose opinions are valuable, will not repudiate them. There are many who object to the use of the Greek language, but they do not know, and cannot appreciate its brevity and expressiveness. The learned of all nations employ it constantly ; and I see no reason why we should not imitate their example.]

ORDER II.

PHLEGMASIÆ. INFLAMMATION.

GENERIC CHARACTER.

Synocha fever, with local inflammation and pain; the function of the part being injured at the time; the blood upon venesection exhibiting a buffy coat.

GENERA.

PHRENITIS, or inflammation of the Brain.	
[MENINGITIS,	Membranes of the brain.]
OPHTHALMITIS,	Eye.
OTITIS,	Ear.
GLOSSITIS,	Tongue.
CYNANCHE,	Throat.
PLEURITIS,	Pleura.
[PLEURODYNIA,	Bastard Pleurisy.]
PNEUMONITIS,	Lung.
CARDITIS,	Heart.
DIAPHRAGMATITIS,	Diaphragm.
HEPATITIS,	Liver.
GASTRITIS,	Stomach.
ENTERITIS,	Bowels.
PERITONITIS,	Peritoneum.
SPLENITIS,	Spleen.
NEPHRITIS,	Kidney.
CYSTITIS,	Bladder.
HYSTERITIS,	Womb.
PROSTITIS,	Prostrate gland.
PODAGRA,	Gout.
RHEUMATISMUS,	Rheumatism.

[Inflammation may attack every tissue or part of the body, not perhaps excepting the hair, cuticle, and nails, and facts are not wanting to prove that these parts may become diseased. Dr. Hooper does not describe many of the above inflammations, but I have introduced them in this edition.]

GENERAL CAUSES.

All the causes inducing local inflammation: viz.

All mechanical, chemical, and nervous stimuli; as external injuries by bruises, wounds, compression, &c. Irritation produced by the presence of extraneous bodies of whatever kind.

The application of cold or heat.

Any cause that determines an increased or irregular impetus of blood to the part : as violent exercise, certain diseases, an inordinate influx of nervous energy.

All the causes inducing inflammatory fever. *Vide* Synocha.

GENERAL TREATMENT.

Indications.—I. To remove the remote causes when they are evident, and continue to operate.

II. To lower the strength of the vascular system in general.

III. To lower the tone, diminish the sensibility, and reduce the inflammatory action of the part in particular.

The remedies which fulfil these indications are called ANTIPHLOGISTIC : they are as follows :—

The removal as much as possible of all those natural and other agents or stimuli, by which the circulation is supported.

[Depletion, large doses of tartarized antimony, as first recommended by Dr. Marryatt of Dublin, (*Pract. of Physic.*) purgatives, diaphoretics, and all other counter-irritants, are the remedies to be employed for this purpose.]

The most perfect quiet, and simplest diet of water with farinaceous substances and subacid fruits or juices.

Blood-letting, both general and local, [with nauseating or large doses of tartarized antimony.]

Purgings, especially with the saline purges, as the sulphate of magnesia ; the sulphate of soda ; the tartrate of potass ; and the soda tartarizata.

Diaphoretics, especially the saline, as the citrate of potass ; the citrate of soda ; the acetate of ammonia ; the nitrate of potass ; the antimonium tartarizatum ; and the pulvis antimonialis.

Blisters and rubefacients, cold applications, as water, ice, snow, dilute vinegar, &c.

PHIRENITIS.—INFLAMMATION OF THE BRAIN.

SYMPTOMS.—Inflammation of the brain or its membranes begins with horror ; immense anxiety and sense of tension referred to the head and breast ; loss of memory ; [absurdities of patient's behaviour and discourse, throbbing of the temporal and carotid arteries ;] frightful dreams ; nausea and oppression at the stomach ; excruciating pain in the head ; extreme sensibility to impressions of light and sound ; peculiarly wild expression of the countenance ; constant watchfulness. The face becomes flushed and turgid ; the eyes stare, and seem as if starting from their sockets ; ferocious delirium ; tears sometimes start from the eyes ; sometimes there is profuse sweating from every pore, at others the skin is dry and

burning; parched tongue; at first fiery red, afterwards becoming white, yellow, or black; peculiarly hard and rapid pulse.

Phrenitis generally terminates in stupor and insensibility; and if protracted, in great prostration of strength, symptoms of debility, [mania, idiotcy, lethargy, or effusion of the brain.]

CAUSES.—Exposure to excessive heats, or to vicissitude of temperature; as subjecting the head uncovered to the rays of a vertical sun; violent exercise; stimulant passions of the mind; intense study; the presence of irritating matter in the stomach; external violence; the abuse of spirituous liquors; [metastasis of gout, rheumatism, erysipelas, otitis, exanthematous fevers, small-pox, measles, scarlatina; whooping cough, dentition; the repression of cutaneous affections, as those of the scalp; pneumonia, phthisis, renal affections, and all the febrile diseases.]

DIAGNOSIS.—*From mania*.—By the one being accompanied with violent fever, the other not; by the speedy termination of the one, [on the third, fourth, or seventh day,] and longer duration of the other, [for weeks, months, or years.]

From the delirium of synocha.—In phrenitis, the delirium is the primary affection; in synocha it is consequent upon the general fever. In synocha the pulse is strong and full; in phrenitis, small, hard, and more rapid. Phrenitis terminates, when protracted, in symptoms like those of typhus; true inflammatory fever, most frequently in visceral inflammation.

From the delirium of typhus.—By the mode of the accession: the affection of the head in phrenitis comes on suddenly, and is extremely violent; the delirium of typhus is preceded by the characteristic marks of that disease, and is more moderate in degree. It is distinguished from the low muttering delirium often accompanying nervous fever by there being in this no symptoms of inflammation: the face is pallid, the eyes are dull, and all the features shrunk; the contrary is the case in phrenitis.

[*From delirium tremens*.—In delirium tremens the patient recognizes some of those about him, has tremulous motions of the body and limbs, the skin is cool, the pulse small and rapid, the countenance pale in general, but may be florid. The patient has no sleep or drowsiness for three days, even by large doses of sedatives—he is more violent at one time than at another.

Encephalitis, cerebritis, or inflammation of the substance, may be idiopathic, or combined with meningitis or inflammation of the membranes of the brain.

In cerebritis the functions of the brain are speedily and primarily deranged; while in meningitis they are secondarily affected.

When cerebritis is general, there are tonic and clonic spasms of the muscles, carphology, subsultus tendinum or starting of the tendons, convulsions and cramps, rigid contraction of the limbs, and these attack all the limbs simultaneously; but when the disease is local or partial, some of the limbs only are affected. The

action of the muscles and the sensibility are also partially but not permanently affected at first. In three or four days, these symptoms are succeeded by those of compression produced by effusion, as relaxation and immobility of the limbs; the senses are deranged or entirely abolished.

The symptoms already described are most urgent at first, and are followed in two or three days by those of compression. The premonitory symptoms are—sense of weight in the head, noise or tingling in the ears, deception of vision, scintillations of light, change of colour of bodies, &c., irritability of the retina, numbness of one side, pain or pricking of the limbs; and these are followed by partial or general contractions of the muscles. There is pain in the head, usually referred to the side opposite to the inflamed one: sometimes the muscles of the limbs and face are contracted; one or both angles of the mouth are retracted, and the limbs may be flexed or extended. When collapse occurs, the muscles become flaccid and paralysed; the commissures of the lips, hitherto contracted, become pendent; the head and face are drawn to the sound side.

The muscles may become rigid after sudden paralysis with flaccidity, which is ascribed to the supervention of encephalitis after apoplexy, the parieties of the cavity containing the effusion having become inflamed.

When convulsions attack the unaffected side, unaccompanied by paralysis, there is arachnitis; and when paralysis succeeds, there is inflammation on the opposite side. When cerebritis succeeds arachnitis, especially at the base of the brain, as in children, one side of the body becomes paralysed. When the upper extremities are affected, the posterior fibres of the optic thalami of the opposite side are diseased; when the inferior extremities are disordered, the anterior half of the corpus stratum is implicated.

When there is paralysis of both sides of the body, the central portion of the pons varolii is disorganised. In cases in which paralysis, or muscular rigidity, is absent, and in which coma supervenes, there is inflammation of the corpus callosum, septum lucipum, or fornix.

When power of utterance is lost, the anterior lobules of the hemispheres are altered in structure.

In cases of encephalitis, accompanied by strabismus, rotation of the eye, contraction, immobility, and constant oscillation of the pupil on one side, the surface of the corpora quadrigemina of the opposite side is disorganised.

Loss of vision on one side depends on lesion of the pituitary gland, infundibulum and gray lamella of the opposite side. When the membranes of the eye lose their transparency, accompanied by paralysis of the organs of sense on one side, the ganglion of the fifth pair of nerves over the petrous portion of the temporal bone, or the corresponding walls of the fourth ventricle, are affected.

Derangements of the circulatory, respiratory, and generative system, without paralysis of the limbs, depend upon lesion of one of the lobes of the cerebellum.

In arachnitis we observe spasmodic symptoms without paralysis; in hæmorrhage, sudden paralysis without spasmodic symptoms; in cerebritis, spasmodic symptoms, slow, progressive, or intermittent paralysis.

Anatomical characters.—A rosy or reddish colour in the part of the brain which was inflamed, vascular filaments: on incision through the affected part, we perceive a multitude of red points which cannot be removed by ablution, and do not afford blood on pressure as in congestion. There is softening, or ramollissement, of the inflamed part; sometimes this part is so injected as to resemble the colour of port wine. When the disease suppurates, we find well-formed abscesses separated from the substance of the brain by newly formed membrane; and the pus may be white, yellow, or greenish, scarcely emitting any odour, unless when the petrous portion of the temporal bone is carious, and then it will be fetid. The cineritious substance is the most common seat of cerebritis, and the corpora striata, optic thalami, the convolutions, pons varolii, and cerebellum are most frequently affected. It is right to state, that meningitis is often combined with cerebritis, and this disease must be described, though omitted in the former editions of this work. The reader should refer to the account of hydrocephalus, p. 156, and of apoplexy, as the first depends upon inflammation, and the second on congestion, of the brain.]

Prognosis.—Favourable.—The appearance of a warm and equable perspiration, when the skin has been before constricted; diarrhœa; sediment in the urine; hæmorrhage from the nose; the pulse diminishing in frequency, and becoming more full and soft; the return of sleep and consciousness; inflammation attacking a less important part.

Unfavourable.—After ferocious delirium and constant watchfulness, the pupil of the eye becoming dilated, frothing at the mouth, grinding of the teeth, profound insensibility, tremors, convulsions, involuntary evacuations; the face, from being flushed, suddenly becoming pale; suppression of urine; involuntary tears, or lachrymation; the urine of a dark red or yellow colour, or covered with a pellicle; the feces either bilious or white and very fetid; profuse sweats without affording relief; paralysis of the tongue or other parts; inflammation of other viscera, without diminishing the symptoms of the original disease; delirium changing to coma, while the pulse becomes weaker.

Treatment.—Indication.—To diminish the quantity of circulating fluids, and lessen the tone of the vessels, in the system in general, and in the head in particular.

1. By bleeding.—A copious and sudden evacuation of blood from the temporal artery, the jugular vein, the arm, [or foot,]

which should be repeated frequently, proportioning the quantity to the age, sex, or temperament and habit of the patient :

Mittatur sanguis, pleno rivo, ad deliquium animi, et repetatur. manū liberā, pro re natā.

Topical bleeding also, from the head, neck, [anus.] or feet :

Admoveantur singulis temporibus hirudines quatuor vel sex.

[Leeches should be applied along the sagittal suture and to the sineiput, to relieve the longitudinal sinus, into which the cerebral veins discharge themselves.—(Costa.) Leeches applied indiscriminately over the head are objectionable. (See Synochus, with Cerebritis or Cerebral Congestion.) When encephalitis is symptomatic of gastro-enteric irritation, or inflammation, we direct our treatment to the intestinal canal.]

2. By purging ; with neutral salts, or the submuriate of mercury in strong doses, so as to keep up a counter-irritation, and not to excite vomiting.—See pp. 75—81.

3. By saline diaphoretics and refrigerants.

The saline draughts or mixtures directed for inflammatory fever, see pages 76 and 77.

The imperial drink, lemonade, and the like.

R. Liquoris Ammonie Acetatis fʒijj ; Misturæ Camphoræ Fortioris fʒx ; Potassæ Nitratis ʒss ; Liquoris Antimonii Tartarizati ℥x ; Syrupi Aurantii fʒj ; Misce pro haustu diaphoretico, quartā quaque horā sumendo.

4. By acrid pediluvium and semicupium ; the application of vinegar and water to the head, previously shaved, or water made colder by placing it in ice or snow, or the following evaporating lotion :

R. Liquoris Ammonie Acetatis ; Spiritus Tenuioris ; Aquæ, Singulorum, Partes Œquales : Misce pro Lotioni, Capiti raso, applicanda.

[The cold dash, as described p. 97, is the best remedy.]

5. By the application of blisters to the head, neck, and legs. [These are objected to in the first stage of the disease.—[*Copland's Dictionary of Practical Medicine*, 1832.]

Applicetur, toto capiti raso, vel nuchæ capitis, vel suris externis, emplastrum cantharidis amplum, [vel cataplasma sinapis. The practice of blistering the head or neck is now generally abandoned, except in the last stage of the disease.

Calomel, James's powder, and tartarized antimony, are strongly recommended in large and repeated doses. Mercurialization is considered one of the best remedies. Colchicum and calomel are combined in gouty and rheumatic complications with good effect. When there is erysipelatous or apoplectic combination, free incisions into the scalp over the occiput, as first proposed by Soefller, may be employed.

The disease may be symptomatic of gastro-enteritis in children, or of hepatitis in adults : and here the ordinary measures must be

tried with local bleeding over the abdomen or liver. When encephalitis follows congestion, caused by narcotics, it is to be treated on ordinary principles. In some cases the most active depletion fails, and a great prostration is produced; there are tremors, coma, irregular pulse, diminution of temperature, &c.; and we must exhibit ammonia, quinine, Hoffman's anodyne liquor, musk, and camphor.

Traumatic encephalitis is treated by the antiphlogistic measures and cold applications, as already mentioned. In this and other forms of the disease catheterism may be necessary. As soon as the irritation and febrile symptoms cease, the face being pallid, the pulse weak, small, soft, and frequent, collapse or coma evident, we should employ diffusible stimuli, as in the last stage of typhus or synochus. In a case with profound coma, Dr. Mackintosh poured boiling water repeatedly over the legs with success. We should likewise abandon depletion so soon as paralysis is succeeded by rigidity or spasm. When the symptoms abate, and paralysis remains after convalescence, it should be treated by counter-irritation, antimonial ointment rubbed as nearly over the origins of the affected nerves as possible, by repeated blisters, moxas, issues, setons, or occasional cupping. When encephalitis is caused by morbid tumours or fluids in the brain, it can seldom or ever be removed.

The most perfect tranquillity should be observed in the patient's room, all sounds and light excluded, and no food whatever be allowed during the inflammatory period, except barley-water, rennet-whey, gruel, sago, panada, arrow-root, or the like.

Modern writers have endeavoured to distinguish meningitis from phrenitis, but it is generally admitted that this is impossible in the present state of science; nor is it important, as the treatment is similar for both. The following is the description of ancient writers.]

[MENINGITIS, PARAPHRENITIS, ARACHNITIS.

INFLAMMATION OF THE MEMBRANES OF THE BRAIN.

According to Fordyce and Cullen, the pain is acute in meningitis, and dull or obtuse in cerebritis. Pinel, Stoll, Morgagni, Vaidy (*Dict. des Sciences Med.*, art. *Phrenitis*), Dewees (*Pract. of Physic*), Mackintosh (*Pract. of Physic*), Abercrombie, and a host of others, deny the possibility of distinguishing one affection from the other; while Parent, Martinet, Rostan, and Copland hold the opposite opinion. All admit that the diagnosis between arachnitis and inflammation of the pia mater cannot be formed during life, and therefore both are included in the term meningitis.

SYMPTOMS.—Acute pain in some part of the head, exasperated at intervals; intolerance of light and sound; insomnolence; flushed countenance; suffusion or redness of the eye; frequent, quick,

pulse: spasmodic twitchings or convulsions; sopor, coma, or delirium in adults; and complete relaxation of the limbs. The pain is often so violent as to compel children to scream in their sleep, and to roll their heads on the pillow: there is also knitting of the brows; and many of the symptoms of phrenitis are present in the adult, and those of hydrocephalus in children. The slightest noise is insupportable; the patient is irritable, the temperature of the head is greatly increased, and the febrile symptoms are very high. There is generally vomiting from the commencement of the attack in children, and is unattended with pain in epigastrium: this symptom is absent in the adult. Convulsive and spasmodic symptoms supervene, and are speedily followed by those of collapse, subsultus tendinum, carphology, cramps, general relaxation, and death. In lymphatic or delicate persons, the disease is ushered in by prostration, disturbed sleep, loss of appetite, irritability of temper, slight febrile symptoms, and sudden invasion of stupor or coma.

When the disease is seated in the ventricles and base of the brain, as in children, the pain is referred to the forehead, temple, or occiput; and the head is often drawn backwards, which denotes that the part of the membrane covering the pons varolii is affected. Well-marked remissions occur in some cases, but these are speedily succeeded by convulsions or coma, and the last becomes permanent, the limbs relaxed, the pulse remarkably slow, and the pupils dilated. The symptoms differ in adults; there may be languor, insomnia, inactivity of mind, instead of the spasmodic symptoms above described.

When the disease is seated on the convexity of the brain, the ideas are incoherent; the gait vacillating or unsteady; the limbs affected with tremblings; and when these symptoms come on slowly, the disease is chronic; but they will be followed, according to Bayle, with maniacal delirium, characterized by an "exaggeration of all ideas, especially those of ambition;" and this terminating in mental alienation, or idiocy, or in general paralysis, which may continue to increase for years, though the functions of respiration, circulation, and digestion are performed regularly.

According to Lallemand, the following diagnosis may be relied on. In arachnitis there are spasmodic symptoms without paralysis; in hæmorrhage, sudden paralysis without spasmodic symptoms; in encephalitis, spasmodic symptoms, slow and progressive paralysis, the progress of which is unequal and intermittent.

Anatomical characters.—The arachnoid membrane may be unchanged, if the disease had been of short duration, but cannot be separated from the pia mater, which adheres to it; but when the disease was severe, it will be opaque and thickened, according to Abercrombie, to a degree equal to the thickness of wafer, others say to that of the pleura, which Martinet denies, while Money (*Vademecum of Morbid Anatomy*, 1830,) states, that "it has ac-

quired the density of the pleura, of the pericardium, of the dura mater, and even of that of the coats of the stomach!" It may adhere to the pia mater, be opaque, or highly injected and inseparable from it, except in fragments or patches. In some cases a sero-purulent fluid or real pus is effused under the arachnoid, or this membrane may be covered with false membranes. It is seldom inflamed on its cranial surface. In some cases it is rough and slightly granulated; and this state must not be mistaken for the Pacchionian glands, which are larger, more numerous, and whiter. The ventricles contain, in general, a serous, serosanguinolent, or sero-purulent fluid; and when these exist in children, there is ramollissement of the ventricular parietes. There may be effusion between the arachnoid membrane and pia mater, and adhesion between the latter and the brain at different points. The choroid plexus, corpora striata, and optic thalami may be covered with flakes of lymph. In some cases there is effusion of a limpid or turbid fluid at the base of the brain; the circle of Willis, basilar, and vertebral arteries may be coherent by bands of coagulable lymph, and even the lobes of the brain have been united in the same manner.

TREATMENT.—The treatment is the same as in phrenitis, p. 153, and the first stage of hydrocephalus acutus, p. 156.

Inflammation of the Dura Mater is generally produced by injuries of the head, and is rarely an idiopathic disease.]

Of the Hydrocephalic Species.

HYDROCEPHALUS.—WATER IN THE HEAD.

SYMPTOMS.—Languor, inactivity, loss of appetite, nausea, vomiting, parched tongue, hot dry skin, flushing of the face, and other symptoms of pyrexia; pain over the eyes; great sensibility to light; suffused redness of the eyes; the pupils are contracted; the pain in the head is now extremely acute; it comes on at intervals, and occasions the sufferer to utter piercing screams, at the same time compressing the forehead with his hand; disturbed sleep; extreme restlessness; flushed countenance; costiveness.

In a short time the pupils of the eyes begin to dilate; strabismus takes place; the vomiting and pain in the head become more violent especially in the evening; at length the pain diminishes, and sleepiness succeeds a constant state of watching; the pulse, before increased in quickness, is now prematurely slow and often intermitting; the strabismus increases; the pupils become more dilated and cease to contract on their being exposed to light; double vision or complete loss of sight, with lethargic torpor, succeed.

After a shorter or longer continuance of the second stage, the pulse again returns to a febrile state, and becomes so extremely

small and rapid, as scarcely to be numbered : the eyes are now inflamed ; extreme difficulty of breathing ; stertor ; the evacuations become involuntary ; maculae sometimes appear about the joints, and in different parts of the body ; and at length the patient expires in dreadful convulsions.

CAUSES.—The disease is almost peculiar to children, and more frequently attacks the scrofulous ; it seems to originate in a weakened state of the organ itself.

The proximate cause in some cases appears to be inflammation, which terminates by an effusion of watery fluid.—[See Cerebritis, 149, and Meningitis, p. 154.]

In other cases the proximate cause would seem to be the same as that of the other species of dropsy.—See Hydrocephalus in the class *Cachexiæ* ; order *Intumescentiæ*.

DIAGNOSIS.—The pathognomonic symptoms are the excruciating pain in the head, vomiting, impatience of light ; followed by strabismus, dilated pupil, and profound stupor. The pulse, at first preternaturally quick, afterwards becoming inordinately slow or intermitting.

PROGNOSIS.—Will ever be unfavourable, more especially where the coma is great, with total loss of sight, and weak intermitting pulse ; the head greatly enlarged, apoplectic stertor, difficult respiration, and involuntary evacuations.

TREATMENT.—*Indications.*—I. To lessen inflammation in the inflammatory stage.

II. To promote the absorption of the fluid, when effusion has taken place.

The inflammation is subdued by,

1. Bleeding ; the application of leeches to the temples or neck, by opening the temporal artery, or the jugular vein, see p. 153.

2. Cathartics ; of jalap, submuriate of mercury, or soluble tartar.

R. Gummi-resinæ Scammoniae gr. iv ; Hydrargyri Submuriatis gr. iij ; Sacchari Purificati gr. v : Fiat pulvis catharticus ex auxilio mellis sumendus.

Half a drop or a drop of the oleum crotonis is a sure purge, which may be disguised and given to children when other medicines are refused.

R. Hydrargyri Submuriatis gr. ij ; Pulveris Antimonialis gr. j : Fiat pulvis omni bihorio adhibendus ex quovis vehiculo crasso.

3. Diaphoretics ; especially antimonials.

4. Nitrate of potass in large doses with digitalis.

R. Potassæ Nitratis gr. vj ; Tincturæ Digitalis ℥ v—x ; Liqoris Ammoniae Acetatis fʒij ; Aquæ Destillatæ fʒv ; Syrupi Croci fʒj : Fiat haustus infanti æt. 4 adhibendus tertiâ quaque horâ.

5. Blisters, and cold applications to the head ; cloths wetted with cold water, or vinegar and water, which may be made very cold by ice, or solutions of muriate of ammonia and nitrate of potass, and so applied as not to interfere with blistering.—See p. 153.

The second indication requires,

1. Mercury; mercurial friction [to the nape of the neck or angles of the jaws], submuriate of mercury taken internally.
2. Digitalis; either alone, or united with the submuriate of mercury and squills.
3. Tonics; the ferrum ammoniacale, sulphas ferri: or those recommended for the cure of anasarca; but I have never seen them indicated in acute hydrocephalus.

[LETHARGY, COMA, CARUS, CATAPHORA.]

These are now considered various degrees of diseased action in the brain, and particularly of a congestive or apoplectic character. Lethargy is applied to a disposition to sleep, from which the person can be easily roused, will answer when spoken to, and retains at various intervals his powers of consciousness and action.

Coma is a greater degree of drowsiness than lethargy, the person when roused instantly relapsing into his former state.

Carus is applied when the individual cannot be roused by any means.

Cataphora is the same as profound coma (Copland), or includes lethargy, coma, and carus. (Frank.)

These states depend upon congestion or effusion, or upon prostration of the sensorial power, as in the last stage of typhus, and are to be treated accordingly.—See Apoplexy, Typhus.

This disease is often the consequence of an attack of active inflammation of the membrane lining the cavities of the brain; it then produces symptoms very similar to those of phrenitis, which are quickly followed by symptoms of compression and apoplexy. See Apoplexia Hydrocephalica, and p. 156.

Water also collects in the cavities of the brain and between its membranes, from mere laxity or debility of the brain, or from general debility, or other causes more commonly productive of the dropsies, and then the disease does not bear much resemblance to apoplexy.

SYMPTOMS.—Children are sometimes born with this disease. It takes place at all periods between birth and the age of eight, very seldom after, and is known by drowsiness, languor, strabismus, vomiting, costiveness, coma, convulsions, the bones of the head perhaps separate, the fontanels enlarge, and the head acquires an immense size.

CAUSES.—The infantile age; injury to the brain during labour; tumours within the cranium; and the other causes of the dropsies; dentition, irritation in the digestive organs, especially the intestinal canal and liver.

The effusion takes place with astonishing rapidity, and hence we must endeavour to prevent it by the application of leeches to the head, as advised in phrenitis, p. 153, mustard pediluvia, warm bath

with cold to the head, purgation, &c. The cold affusion on the head during each paroxysm of fever is highly beneficial.

We should carefully distinguish the *hydrocephaloid disorder* caused by worms, diarrhœa, or inanition, which closely resembles hydrocephalus, and which will be aggravated by the antiphlogistic treatment, and cured by stimulation. The diagnosis is easily formed—in the latter, the extremities are cold, the eyes half closed, the eyelids in a constant state of motion, the scalp cool, the pulse small and weak. The history of the case will also assist us. Aromatic spirit of ammonia or brandy given in arrow-root, milk, in small doses, three or four drops at a time, warmth to the extremities, epigastrium, and abdomen, will soon excite reaction and establish a cure.

In hydrocephalus the head is large and the hair abundant, while one or both fontanels are open—the head is of the ordinary size in the hydrocephaloid affection.

When depletion, leeching, warm bath, sinapisms, blisters, and purgation have failed, the pupils dilated, the respiration stertorous, convulsions or paralysis of the limbs with coma, the pulse extremely frequent or slow, effusion has taken place, and we must endeavour to arrest or diminish it by absorption, by causing powerful revulsion. This is effected by blisters, antimonial ointment rubbed to the neck and behind the ears, mercurial frictions at the angles of the jaws and over the scalp. If the alimentary canal and the alvine secretions be healthful, we should exhibit calomel freely, in doses of three or four grains every three hours, both as a purgative and sialagogue; but it is extremely difficult to produce salivation in hydrocephalus. So much as 500 grains have been administered without causing ptyalism. Some combine it with James's powder, others with the antimonial powder, and more with small doses of opium.

Nauseating doses of tartarized antimony, as one grain in a six-ounce mixture, a teaspoonful of which is given every hour, have been strongly recommended by Dr. Mills of Dublin and others. Vomiting should be carefully avoided in inflammations of the brain or its membranes. It often happens that the disease lingers for a long time, and that the digestive functions are unaffected. In such cases, a milk, nutritious diet composed of the vegetable jellies, as sago, arrow-root, tapioca, &c., light puddings may be allowed; and if there be much prostration, a teaspoonful of some of the white wines, sherry or Madeira, may be allowed. The disease now assumes a chronic form, and may continue for months or years unless tapping be resorted to, which may effect a cure.

When hydrocephalus supervenes on scarlatina, measles or small-pox in a leuco-phlegmatic habit, the treatment already described must be employed; in addition to which, M. Martinet advises frictions over the whole surface of the body with tincture of squills or digitalis, vapour baths, nauseating doses of tartarized antimony and the compound ipecacuanha powder.

M. Charpentier and others object to the application of blisters or counter-irritants near the head in the early stage of the disease; they place them successively on the legs, thighs, arms, neck, and lastly on the scalp.

When the disease is chronic, tapping the brain for the removal of the fluid, and then compression, have lately been tried with complete success. Tapping would not be warrantable in acute hydrocephalus, because the convulsions of the brain would not be expanded or thinned, and fatal inflammation would be induced.

M. Recameir and M. Andrieux have strongly recommended warm baths, with from one to five ounces of tartarized antimony in each, the effects of which were a copious discharge of urine, emaciation, and a sensible diminution of the head.

Goelis exhibited calomel and juniper-berries, and made frictions with the Neapolitan ointment over the scalp, covering it with a woollen cap, so as to keep up continued irritation. He ordered issues and alkaline baths. Monro tertius applied a plaster of wax and tartarized antimony to the scalp, and others cauterised the scalp with nitrate of silver, and some advised a blister to be kept discharging for several days or weeks.

Sir Gilbert Blane and Dr. Barnard tried compression, but without success, except in one case.

P. Frank thought that hydrocephalus was induced by washing the scalp with cold water; and M. Martinet states, that it appears to be endemic in low, hot, damp, confined situations, as Valais, where it is almost epidemic. He therefore recommends a change of situation to a more elevated and salubrious position.

PROGNOSIS.—The disease generally kills; though after the bones begin to separate, its fatal termination is protracted. Convulsions generally precede, and death soon follows.

TREATMENT.—*Indication.*—To promote the absorption of the effused fluid. No plan of treatment has hitherto been sufficient to cure this disease: but the most likely remedies to fulfil the indication are,

1. Blisters to the head.
2. Mercury; applied externally, and given internally, so as to affect the mouth.
3. Diuretics of squills, digitalis, and submuriate of mercury, as recommended for anasarca.
4. Tonics, and especially cinchona and chalybeates.

Absorption is often promoted, according to my experience, by frictions with the ioduretted mercurial ointment on the scalp. When all fails, paracentesis cranii has proved successful.

Dr. Conquest has favoured Dr. Ryan with the following account of his cases of tapping the brain:—

“My first successful operation was performed at St. Bartholomew’s Hospital in the autumn of 1829, when only $\frac{5}{16}$ ss of serum escaped, but during the subsequent two days, not less than $\frac{5}{16}$ xiv

flowed. The child had been the subject of frequent convulsions, &c. before tapping; but only one paroxysm followed. Two years afterwards the child was in perfect health. The second patient was tapped thrice; first on the 20th of November, when $\bar{5}xij$ of serum were taken away; secondly, on the 2nd of December, $\bar{5}vii$ were evacuated; and on the 16th $\bar{5}ij$. Dr. Hodgkin assisted me in this case.

"The third terminated fatally after drawing $\bar{5}lvijss$ by five operations, a fortnight intervening between each.

"The fourth case was and is a patient of Dr. Caldwell of the City Dispensary: $\bar{5}xxiv$ of serum were taken away by two operations, $\bar{5}xij$ of fluid escaping each time, a month having intervened between them."

"In the *Lancet* of September the 15th, 1832, Dr. C. further details the history of this case, and states, that at the end of two years the child continues well.

"The fifth patient is a child yet living, but will eventually die. I have tapped it four times since February, 1832, and taken away $\bar{5}xlv$ altogether. I believe the child would have recovered had the parent consented to one or two more operations.

"I have operated on five other cases: in one instance the child survived two tapplings, (one of $\bar{5}xvj$, the other of $\bar{5}xij$,) six months, and then died of hooping-cough. In another case, the infant lived some months, and was carried off by teething. Another case is yet under my care, promising to do well, having been tapped three times, and the others ended fatally. December 7, 1832."

Mr. Russell, of Aberdeen, details the following case. A fine trocar, such as is used for hydrocele, was introduced into the head of a female infant aged eight months, about half an inch in depth on the right side of the anterior fontanelle; and three ounces of serous fluid were discharged through the canula. A piece of adhesive plaster was applied over the wound, and a roller round the head. A slight degree of fever followed. In ten days afterwards, a similar puncture was made on the opposite side, and five ounces and a-half of turbid serum were evacuated. No unfavourable symptom followed. In five days afterwards the head was diminished two inches and a-half in circumference, and two and a-quarter across the vertex. In a fortnight after the last operation the trocar was passed near the first position in an oblique direction into the ventricle, when nine ounces of serum escaped in a continued stream. The pulse became weak and feeble, and she became faint; but she soon revived, and no bad symptom followed. She recovered completely, and became a lusty child of her age.—*Edinburgh Medical and Surgical Journal*, July, 1832.

The operation has been successfully performed by others since the date last mentioned, and ought to be employed when all other means have failed.]

CLASS II.

NEUROSES ; OR, NERVOUS DISEASES.

CHARACTER.

Preternatural affection of sense or motion, without any idiopathic fever, or primary local affection.

ORDERS :

COMATA.	SOPOROSE AFFECTIONS.
ADYNAMIE.	ADYNAMIAL AFFECTIONS.
SPASMI.	SPASMODIC DISEASES.
VESANIE.	DISEASES FROM IMPAIRED JUDGMENT.

ORDER I.

COMATA.

CHARACTER.

Diminution of voluntary motion, with sleep, or a privation of sense.

GENERA.

APOPLEXIA.	APOPLEXY.
PARALYSIS.	PALSY.

 APOPLEXIA.—APOPLEXY.

SPECIES.—1. *Apoplexia sanguinea* ; with signs of universal plethora, and chiefly of the head.

2. *Apoplexia serosa* ; occurring for the most part in the leucophlegmatic bodies of old people.

3. *Apoplexia hydrocephalica* ; coming on by degrees ; affecting infants and children, first with lassitude, a degree of fever and headache ; afterwards with slow pulse, dilatation of the pupil, and drowsiness.

4. *Apoplexia atrabilaria* ; in a person of a melancholic temperament.

5. *Apoplexia traumatica* ; from external violence applied to the head.

6. *Apoplexia venenata* ; from sedatives externally or internally applied.

7. *Apoplexia mentalis* ; from affections of the mind.

8. *Apoplexia cataleptica* ; the muscles obeying the motion of the joints when influenced by force externally applied.

9. *Apoplexia suffocata* ; from suffocation by something external.

Of these species, the three first only require a particular description ; the others are known by their several causes, and their treatment will be similar to that of the sanguineous or serous species : after the removal of the exciting causes, according as the symptoms evince the character of the one or the other. [The real pathology of this disease is described in its anatomical characters.]

SYMPTOMS.—*Of the sanguineous.*—Abolition of all the powers of sense and motion, accompanied with noisy or stertorous breathing ; flushed, and sometimes livid, countenance ; prominence and immobility of the eye, with dilated pupil ; foaming at the mouth ; grinding of the teeth ; often a resolution of the sphincter muscles ; the strength of circulation remaining unimpaired. The attack is sometimes sudden, at others it is preceded by various symptoms denoting an affection of the brain ; such as giddiness, headache, hæmorrhage from the nose, interruption of sight or of hearing, false associations of ideas, faltering in speech, loss of memory, drowsiness, numbness of the extremities. It often terminates in paralysis, or the patient is seized with vomiting, and recovers after a profuse sweat.

Of the serous.—The attack of serous apoplexy is, in general, more gradual than that of the sanguineous ; and is preceded by languor, debility, disposition to sleep, and often partial loss of sense. In the fit, the pulse is weak, the face pale, and there is a diminution of natural heat. [When paralysis follows, the muscles of the affected side of the face are relaxed, and the opposite ones are natural, which gives the appearance of the face being drawn towards the sound side.]

CAUSES.—*Of the sanguineous.*

Predisposing.—A certain age : from the fiftieth to the sixtieth year [it occurs from the third year to decrepit old age—*Serres*] ; great obesity, especially if occurring in persons having a short neck and large head ; indulgence in the luxuries of the table ; suppression of usual evacuations ; intense study ; sedentary life ; plethora, however induced ; [hypertrophy of the left ventricle of the heart ; metastasis of gout or rheumatism ; and repression or non-appearance of exanthematous eruptions, as variola, rubella, or scarlatina.]

Exciting.—Violent exercise ; passions of the mind ; sudden exposure to cold ; intense heat ; long stooping ; derangement of the stomach, or intestinal canal ; long-continued inspiration, as during

parturition ; excess in venery ; overloading the stomach ; the application of the fumes of certain narcotic and metallic substances, such as opium, alcohol, charcoal, mephitic airs, hot bath, &c.

Proximate.—Pressure upon the brain by extravasated blood, [or serum,] distended vessels, tumour, or other cause. In many instances dissection discovers no obvious cause, and then the proximate is, most probably, an atonic state of the brain. [This is the nervous apoplexy of authors.]

Of the serous.

Predisposing.—The leucophlegmatic constitution. All those causes inducing a debilitated state of the body ; such as depressing passions of the mind, much study, watching, poor living, &c.

Proximate.—The pressure of effused serum upon the brain.

Prognosis.—*Favourable*.—The senses little impaired ; the function of respiration not much affected ; hæmorrhage from the nose or hæmorrhoidal vessels ; diarrhœa. The sanguineous is more dangerous than the serous ; the latter has often been removed by supervening fever.

Unfavourable.—Protracted beyond the third day ; the pulse becoming quick and hard ; febrile heat ; redness of the eyes ; dribbling of saliva from the mouth ; deglutition continuing impeded ; cold extremities ; cold and clammy sweats.

Anatomical characters.—Effusion of blood in the hemisphere opposite to the affected side. The fluid is effused in several cavities, or in one mass. It forms a brown pulpy mass. When recent, the blood is partly fluid and coagulated, and may be separated by ablution. The brain is lacerated about the coagulum, and of a red colour. After some time, the parts surrounding the coagulum or clot become of a yellowish colour, the latter is absorbed, the walls of the cavity approximate or cohere, or are lined by a false membrane. The parts of the brain most commonly affected are, the corpora striata, the optic thalami, and one or both ventricles. In cases of hæmorrhage of the substance of the brain, the vicinal parts, when incised, present a number of red dots, which re-appear after sponging. The vessels of the pia mater and sinuses of the dura mater are often gorged with blood. In serous apoplexy, we find more or less aqueous-like fluid, and in the nervous species, no appreciable lesion. Clots, and copious effusion, do not cause apoplexy, convulsions, or paralysis. (*Veralius, Wepfer, Serres.*) Serres cites numerous cases to prove that effusions are the effect, and not the cause, of apoplexy. In simple apoplexy, the membranes of the brain are affected in various degrees ; there are serous collections in the ventricles or convolutions. Whereas, when the disease is followed by paralysis, there are no effusions, no affection of the membranes, but the substance of the brain is materially altered in structure ; it is torn, or a vessel is lacerated, which was proved by filling the carotids with fine injection. He divides the disease into meningeal and cerebral apoplexy ; the first attacks youths after the

age of fifteen, or men after sixty, and most frequently women before the last period. Meningeal apoplexy is almost always slow, and has precursory symptoms. He states there are five species:—1. meningeal apoplexy without effusion; 2. with effusion of simple serosity; 3. with sero-sanguineous effusion; 4. with arterial rupture, or aneurismal dilatation; 5. with venous rupture. Falls upon the side, which will afterwards be followed by apoplexy, is a fact of great importance in the treatment. There are five species of cerebral apoplexy:—1. with hemiplegia; 2. with paralysis of one arm; 3. with paralysis of one leg; 4. with double hemiplegia; 5. with complete paralysis from a single attack. In nearly 3000 cases the lobe of the brain opposite to the palsied side was disorganized. When the whole body is paralysed, and death rapidly takes place, the extravasation will be in the pons varolii or tuber annulare.]

TREATMENT.—*Indications.*—I. To remove the cause producing pressure upon the brain. Or,

II. To rouse the energy of the brain.

In the sanguineous.

1. By bleeding largely and frequently from the jugular vein and temporal artery, [or from both arms simultaneously. The paleness of the countenance must not prevent us from bleeding when the pulse is strong.]

2. The application of leeches and cupping-glasses.

[Repeated depletion, cold to the head, cupping or leeching the base of the cranium, sinapisms or hot turpentine to the legs, with drastic purgatives, or croton oil applied to the tongue, must be rapidly employed.]

When apoplexy arises from suppression of the menstrual or hæmorrhoidal flux, we should apply leeches to the vulva, or about the anus. When there is profound coma or collapse, we should apply irritating liniments to the legs, thighs, neck, face; and if these fail, and life is nearly extinct, we should pour boiling water over the extremities, as first advised by the Germans, or apply nitric acid to the nucha: stimulants in such cases have produced re-action, and when this happens, depletion may be necessary. The hot air bath, or exhausted air bath, proposed by Sir James Murray, of Dublin, (*Lond. Med. and Surg. Jour.*, 1832,) will be exceedingly valuable in these and all cases of profound collapse.]

3. Blisters, or mustard cataplasms, first to the back, afterwards to the extremities; and then to the head.

4. Drastic purges.

R. Vini Aloes $\mathfrak{f}\tilde{\text{ss}}$; Tincturæ Jalapæ $\mathfrak{f}\tilde{\text{ij}}$; Infusi Sennæ $\mathfrak{f}\tilde{\text{ij}}$: Fiat haustus purgans.

R. Gambogiæ gr. v.; Tincturæ Sennæ Compositæ $\mathfrak{f}\tilde{\text{ij}}$; Tincturæ Jalapæ $\mathfrak{f}\tilde{\text{ij}}$; Infusi Sennæ $\mathfrak{f}\tilde{\text{ij}}$: Fiat haustus catharticus.

The oleum crotonis, lately introduced from the East, can often be given in this disease, when the patient cannot swallow the ordinary doses of other medicines; for two drops put on the tongue

will purge briskly. It is an excellent purgative, inasmuch as it seldom fails: one, two, or three drops is the usual dose. [Aloes, colocynth, scammony, gamboge, should be used in full doses.]

5. Sudorifics of antimonials and acetate of ammonia.—See pp. 77, 80.

In many instances the patient cannot swallow during the fit of this disease: in such cases great care is required lest any thing get into the glottis, and suffocate; and when this is likely to happen, all attempts should be abandoned, and external means trusted to.

6. If the disease take place soon after a full meal, an emetic [or irritating the fauces] should be employed.

7. Erect position of the body.

Should this plan prove ineffectual, recourse should be had to the stimulants recommended for the serous apoplexy, and for paralysis.

In the serous.

1. By emetics of ipecacuanha and tartarized antimony.—See p. 30.

2. By blisters applied to the head. (?) See Cerebritis. p. 153.

3. Sinapisms, [ammoniated oil, or hot turpentine] to the extremities.

4. Diffusible stimulants of ammonia, castor, assafœtida, valerian. [See Typhus Gravior, p. 92.]

5. Electricity; the electric spark passed through the head.

6. Mercury, rubbed on the extremities.

[In this disease, cerebral congestion, last stage of typhus or coma, we must examine the hypogastrium daily, and perform catheterism if necessary. When convalescence commences, we should regulate the digestive system; employ counter-irritation on the neck, insert an issue or seton in that situation, or in the middle of the arm, or on the external surface of the knee. When paralysis ceases in one limb, and seizes on another, we must resort to general and local bleeding, counter-irritation, purgation, &c.]

When apoplexy supervenes after retrocession of gout or rheumatic subjects, we should irritate the site of the latter disease by sinapisms, blisters, warm turpentine, or antimonial ointment, with croton oil: depletion in such cases is generally injurious.

When paralysis follows apoplexy, we should cause irritation over the origins of the affected nerves: and galvanism or electricity are often beneficial in such cases. The editor has relieved numerous cases by local bleeding over the origins of the affected nerves, and then by counter-action or counter-irritation. There is little use in galvanizing or electrifying the limb, unless near the origin of its nerves.

Strychnine is useful when there is no cerebral congestion, pressure on the brain or spinal marrow, or constipation. The twelfth of a grain twice a-day is the dose at first, and two grains the maximum dose. The bowels should act daily during its use.

When paralysis is attended by neuralgia, we should employ carbonate of iron in large doses. When called to an apoplectic patient, we should loosen the neckerchief, open a vein in the arm in the semi-erect position, pour cold water in a continued stream on the head, (see p. 98.) allow free ventilation, open the bowels by croton oil applied to the tongue or by acrid enemata. If the pulse does not rise on the flow of blood, we should bind up the arm lest fatal collapse supervene.

As apoplexy depends on a determination of blood to the head, and generally on a plethoric habit, we should advise the total abstinence from animal food and from all ardent or fermented liquors, spirits, wines, porter, ale, &c. Arrow-root, sago, rice, tapioca, barley, stale bread, oatmeal, potatoes, turnips, and parsneps are the most easily digested of the vegetable aliments. Ripe fruits may be allowed; cabbage, beans, cauliflowers, salads, radishes, onions and cucumbers, are difficult of digestion, and ought to be avoided. Bread or biscuits and milk are the best articles of diet. If animal food be used, it should be in very small quantity. Late suppers must be avoided. Exercise in the open air is of great importance. The patient should wear nothing tight about the neck or waist. Cupping the neck occasionally is a valuable prophylactic.]

PARALYSIS—PALSY.

SPECIES 1.—*Paralysis partialis*, or paralysis of a certain muscle or a set of muscles only.

2. *Paralysis hemiplegica*; or total paralysis of one side of the body.

3. *Paralysis paraplegica*; or paralysis of one half of the body, taken transversely.

4. *Paralysis venenata*; from poisons.

SYMPTOMS.—An abolition of voluntary motion, or sensation, or both, in certain parts of the body only; often with sleep, and slow and soft pulse; preceded, when not the consequence of apoplexy, by universal torpor; vertigo; sense of weight and pain in the head; loss of memory; sense of creeping, of numbness, of pricking, sometimes of heat, in the part afterwards to be paralysed.

CAUSES.—Compression of the brain, from whatever cause; impaired nervous energy; either in the part itself, or in its source, the sensorium commune; determination of fluids to the head, by the suppression of usual evacuations; certain poisons; of which the most frequent is lead; compression of the nerves in their course; apoplexy, and all the causes inducing it; see Apoplexy; irritation of the primæ viæ; rheumatism; pressure of tumours on the brain or nerves.

DIAGNOSIS.—*From apoplexy*.—It is distinguished from apoplexy by the loss of sense and motion being partial only; by the ab-

sence of stertor ; by the sunk pulse ; and other symptoms above mentioned. See pp. 164, 165.

Prognosis.—Favourable.—Sense of pain and itching in the paralyzed parts ; returning sensation and motion. A fever and diarrhœa have restored sensation to parts paralyzed from causes acting upon the nerves only. Youth, and previous strength of constitution.

Unfavourable.—The parts being deprived of both motion and sensation ; gradually wasting, and becoming dry and withered ; convulsions ; the paralysis of the left side is more dangerous than a similar affection of the right ; and of the upper extremity than of the lower. When the consequence of apoplexy, the disease usually proves difficult of cure.

Treatment.—Indication.—To remove causes that are obvious, and thereby to restore sensation and motion to the paralyzed parts.

If the accession of the fit be sudden, the patient of a plethoric habit, and the head much affected, bleeding from the jugular vein, and the treatment recommended for apoplexy.

If the disease occur in a debilitated constitution, in a patient advanced in age, and where the head is little affected, the use of powerful stimuli will be proper ; as, mustard-seed, horseradish, volatile alkaline salts, or spirits, guaiacum, electricity, ather, arnica flowers, rhus radicans, and toxicodendron. [Strychnine, when there is no cerebral affection or constipation. See p. 166.]

One tea-spoonful of mustard-seed two or three times a-day, whole, in a little dill or peppermint-water ; or the mustard as prepared for the table.

R. Radicis Armoracæ Contusæ ʒij ; Seminis Sinapis, Radicis Valerianæ, aa ʒij ; Radicis Rhei incisæ ʒss ; Infunde in vini Hispanici Oij : Sæpe agitetur, et coletur usus tempore : cochlearia duo magna quartâ quaque horâ sumenda.

R. Spiritus Ammoniac Compositi fʒss ; Tincturæ Cardamomi Compositi fʒij ; Aquæ Pimentæ fʒxij ; Syrupi fʒj : Fiat haustus, sextis horis capiendus.

R. Spiritus Armoracæ Compositi fʒss ; Spiritus Ammoniac Fætidæ ℥xv ; Tincturæ Valerianæ Ammoniata fʒss ; Aquæ Pimentæ fʒix ; Syrupi fʒj : Fiat haustus quartâ quaque horâ sumendus.

R. Ammoniac Subcarbonatis gr. vj ; Spiritus Ætheris Sulphurici Compositi fʒj ; Misturæ Camphoræ fʒxiv ; Syrupi Zingiberis fʒj : Fiat haustus quartis horis adhibendus.

R. Guaiaci Pulverisati gr. x. ; Tincturæ Guaiaci Ammoniata fʒj ; Pulveris Acaciæ ʒij ; Syrupi Croci fʒjss ; Aquæ Pimentæ fʒxij : Fiat haustus sextis horis capiendus.

R. Floris Arnice Montanæ ʒj ; Aquæ Ferventis fʒx ; Macera per horam in vase clauso et cola. Colati Liquoris fʒxij ; Tincturæ Zingiberis fʒij ; Syrupi ejusdem fʒj : Fiat haustus quartis horis sumendus.

The mountain arnica, though so much praised by continental writers, is very seldom used in this country.

The external application of stimulating liniments: as the linimentum ammoniæ fortius, the linimentum carbonatis ammoniæ, the linimentum camphoræ compositum, and the linimentum saponis compositum. Also,

R. Pulveris Seminis Sinapis $\overline{3j}$; Acidi Acetici $f\overline{3ss}$; Linimenti Saponis Compositi $f\overline{3jss}$: Fiat embrocatio.

R. Tincturæ Cantharidis, Linimenti Saponis Compositi, aa $f\overline{3j}$: Fiat linimentum.

R. Tincturæ Cantharidis $f\overline{3j}$; Olei Terebinthinæ Rectificati $f\overline{3ss}$; Linimenti Camphoræ $f\overline{3ss}$: Fiat embrocatio.

R. Olei Cajeputi $f\overline{3jss}$; Liquoris Ammoniae Carbonatis $f\overline{3ss}$: Fiat embrocatio.

R. Camphoræ $\overline{3jss}$; Olei Terebinthinæ Rectificati $f\overline{3jss}$: Solve pro embrocatione.

R. Liquoris Ammoniae Carbonatis $f\overline{3ss}$; Linimenti Saponis Compositi $\overline{3jss}$: Fiat linimentum.

R. Liquoris Potassæ Subcarbonatis $f\overline{3ss}$; Linimenti Saponis Compositi $\overline{3jss}$: Misce pro embrocatione.

The frequent and continued use of the flesh-brush.

Blisters, in the direction of the nerves.

Warm fomentations.

Urtication, or the irritating the limb with nettles.

Regular exercise.

The warm and salt-water baths; champooing; vapour baths, simple and medicated.

Bath waters.

The palsy arising from lead requires the internal and external use of mercury in addition to the other means.

R. Hydrargyri Submuriatis gr. $\frac{1}{2}$; Sulphureti Antimonii Præcipitati gr. $\frac{1}{2}$; Confectionis Opii q. s.: Fiat pilula ter in die sumenda.

R. Pilulæ Hydrargyri gr. j; Guaiaci Gummi Resinæ gr. viij; Mucilaginis Acaciæ q. s.: Fiant pilulæ duæ ter in die sumendæ.

R. Linimenti Hydrargyri $\overline{3ss}$; Olei Terebinthinæ Rectificati $f\overline{3ss}$; Linimenti Camphoræ $f\overline{3j}$: Fiat embrocatio, cujus illinatur cochleare medium in partes affectas bis quotidie.

[When palsy succeeds apoplexy, we should employ depletion, purgation, and the antiphlogistic regimen, and then exhibit strychnine in the doses of one-twelfth of a grain twice a-day, increasing the quantity to the sixth, fourth, or even half a-grain. If any unpleasant symptom arises, the medicine must be immediately omitted. It produces convulsions, twitchings in the paralytic limbs at first, and finally restores their action.—*Bardsley's Hospital Reports*. See p. 166.]

Paralysis Agitans may sometimes be cured by C. iron $\overline{3ij}$ 4 die. Croton oil at the same time. In some persons it continues for

life. It may be induced by mental emotions. I have known strychnine effect a cure when the disease was partial.]

[RAMOLLISSEMENT, OR SOFTENING OF THE BRAIN.

This disease is the result of encephalitis according to a preponderating majority of pathologists, while a few consider it a degeneration *sui generis*.

In most instances there are symptoms of encephalitis or meningitis, though of a slight character, there is more or less head-ache, which is constant, the countenance is expressive of cerebral disease, (see Morbid Signs afforded by the Nervous and Cutaneous Systems,) the sensibility and muscular power gradually diminish, and somnolence supervenes, and generally becomes constant. These symptoms may persist for several days. When paralysis, rigidity of the muscles, and convulsions are absent, the patient comatose, the pupils dilated with strabismus; there is softening of the corpus callosum, septum lucidum, or fornix. This form of the disease is often confounded with arachnitis (see Meningitis) of the base of the brain in adults, or in children when convulsions are present.

Anatomical characters.—The medullary part of the brain is of a dull white colour, and softened, while the grey substance is in its normal condition. There is no sign of pus or increased vascular action in the diseased part, nor does the brain when incised exhibit any drops of blood. When the convolutions are the seat of the disease, there is no corresponding vascularity of the pia mater. The parts of the brain most commonly affected are those that are least firm, as the walls of the ventricles, the corpora striata, and the optic thalami.

Dr. Abercrombie relates cases of acute and chronic encephalitis, accompanied by softening, and thinks the last-mentioned disease caused by inflammation. Lallemand is of the same opinion.

Ramollissement, or softening of the brain, may be caused by inflammation, or may occur without any symptom of cerebritis, fever, or even head-ache, especially in aged persons (Rostan.) It is also ascribed to failure of circulation in old persons (Abercrombie.)

SYMPTOMS OF THE SECOND SPECIES.—Vertigo; diminution of the moral and intellectual faculties; of perception, attention, memory, judgment, and imagination followed by senile mental alienation, or great depression of spirits: somnolence, prickings, numbness or twitchings of the limbs, and much difficulty in laying hold of small objects. The senses of vision, gustation, olfaction, and audition are more or less impaired.

These symptoms are succeeded by partial or hemiplegic paralysis, coma, and death.

TREATMENT.—Counter-irritation to the neck; drastic purga-

tives; tonics; improvement of the digestive functions; and escharotics, moxas, antimonial ointment, and galvanism over the origin and along the course of the nerves of the paralysed part.

OTHER DISORGANIZATIONS OF THE BRAIN.

There are numerous other disorganizations of the brain and its membranes caused by congestion or inflammation, as hypertrophy, tubercles, cancer, ossification and other degenerescences, which are described in the systematic and monographic works, and to which I must refer the reader. (See Abercrombie, Olivier, Copland's Dictionary, Mayo's Pathology, &c.)

The SYMPTOMS of chronic degenerescences in the brain are frequent severe head-aches, continued or intermittent, with spasms, neuralgic or anormal sensations in one or both sides of the body, gradual, and finally, total abolition of the faculties, coma, and death.

There are many chronic diseases of the brain and its membranes which may exist for months or years, whose pathology cannot be positively determined during life. These only admit of palliation.

TREATMENT.—The same remedies as in ramollissement of the brain, apoplexy, paralysis, and hydrocephalus.

The nervous disorders of the brain are tetanus, convulsions, chorea, raphania, epilepsy, mania, delirium tremens, and, according to some, hysteria, hypochondriasis, and neuralgiae. These are termed disorders of function, as no change of structure is discoverable on dissection in many cases, though there are morbid alterations in some other examples. As many of these disorders are curable, the inference is that there cannot be any morbid change of structure, as, in such case, a cure could not be effected.]

ORDER III.

SPASMI. SPASMODIC DISEASES.

CHARACTER.

Irregular motions of the muscles, or of the muscular fibres.

GENETA.

In the animal functions.

TETANUS,	. . . .	Rigid spasm.
CONVULSIO,	. . . .	Convulsion.
CHOREA,	. . . .	St. Vitus' dance.
RAPHANIA,	. . . .	Raphany.
EPILEPSIA,	. . . .	Epilepsy.

In the vital function.

PALPITATIO,	. . . .	Palpitation of the heart.
ASTHMA,	. . . .	Asthma.
DYSPNOEA,	. . . .	Difficulty of breathing.
PERTUSSIS,	. . . .	Whooping-cough.

In the natural functions.

PYROSIS,	. . . .	The water brash.
COLICA,	. . . .	Cholic.
CHOLERA,	. . . .	Cholera.
DIARRHŒA	. . . .	Purgings.
DIABETES,	. . . .	Immoderate flow of urine.
HYSTERIA,	. . . .	Hysterics.
HYDROPHOBIA,	. . . .	Hydrophobia.

TETANUS.—RIGID SPASM.

SPECIES.—1. *Tetanus trismus*; spastic rigidity, chiefly of the under jaw.

2. *Tetanus emprostotonos*; the body being drawn or bound forward.

3. *Tetanus opisthotonos*; the body drawn backwards.

4. *Tetanus pleurosthotonos*; the body bent sideways.

SYMPTOMS.—Sense of stiffness in the back part of the neck, rendering the motion of the head difficult and painful; difficulty

of swallowing; pain, often violent, referred to the sternum, and thence shooting to the back; spasm of the muscles of the neck, pulling the head strongly backwards; rigidity of the lower jaw, which increasing, the teeth become so closely set together, as not to admit of the smallest opening, when the affection is called *Trismus*, or *Locked Jaw*.

If the disease proceed further, a greater number of muscles become affected, as those of the spine, bending the trunk of the body forcibly backwards: in this state the disease is termed *Opisthotonos*; or forwards, when it constitutes the *Emprosthotonos*; or laterally, *Pleurosthotonos*.

At length every organ of voluntary motion partakes of the disease; the extremities are rigidly extended; the abdominal muscles are strongly retracted; hence costiveness and suppression of urine are generally produced: the eyes are immovable in their sockets; the tongue often protruded beyond the teeth, or pulled back into the fauces; the forehead is drawn up into furrows; the cheeks backwards towards the ears, and the whole countenance exhibits the most shocking distortion.—The stiffened parts are affected with violent contractions, which occasion the most excruciating pain.—A remission of these occasionally takes place every ten or fifteen minutes, but they are renewed, with aggravated torture, from the slightest causes, even the least motion of the patient, or the touch of an attendant.—At length one universal spasm puts a period to a most miserable state of existence.

CAUSES.—*Remote*.—The male sex; robust and vigorous constitution; warmth of climate.

Exciting.—Vicissitudes of temperature; exposure to cold,* united with moisture; or to excessive heat; injuries of nerves or tendons, by puncture or laceration; the presence of irritating substances in the stomach or alimentary canal; irritation of the extremities of the nerves; affections of the mind.

Proximate.—Unknown.

[Dr. O'Beirne read an elaborate paper before the Medical Section of the British Association at Bristol, August 22, 1836, in which he maintained, "that the seat of tetanus was in the substance of the anterior column of the spinal marrow, that the disease was purely functional, and consists in either an accumulated or a peculiarly intense condition of the motific principle residing in the anterior spinal columns, or pyramids and their prolongation to the optic thalami and striated bodies." He considers that the origins of the pneumo-gastric nerves are affected in emprosthotonos. He only recognises opisthotonos and emprosthotonos and divides these into peracute, acute, subacute and chronic. According to him, certain unknown electrical states of the atmosphere are the most general and operative causes. He says, the disease may continue from three to eight weeks, and in one case the tetanic expression of the countenance remained for fourteen years. The only morbid appear-

ances in several cases of opisthotonos were great distension of the cæcum and colon, with rigid contraction of the rectum; and in cases of the emprosthotonos, either the heart or lungs, or both, were always found more or less diseased. (*London Medical and Surgical Journal*, Sep. 10th, 1836.)]

PROGNOSIS.—Will ever be most unfavourable; more so when the disease arises from injury of nerves than when proceeding from cold; when it comes on suddenly, and quickly advances to a violent degree, than when slow in its progress; when the spasmodic contractions quickly succeed each other, and are excited by very slight causes, than when there is a considerable interval, and the rigidity forms the chief of the disease.

[Dr. O'Beirne succeeded in restoring eleven out of twenty patients to perfect health. Six of the remaining patients laboured under organic disease of either the heart or lungs, for a long period previous to the attack of tetanus. This is the greatest amount of success hitherto obtained, "and the uncomplicated disease is no longer to be considered either incurable or mysterious." Mr. Walker, a veterinary surgeon, of Dublin, succeeded in curing seventy-three horses affected with tetanus, by Dr. O'Beirne's treatment in man. (Op. Cit.) See Treatment.]

TREATMENT.—*Indications*.—I. To remove causes that are obvious.

II. To allay the inordinate action of the brain and nervous system; or to excite a new and powerful action, and thereby supersede the original and morbid one.

When the disease is the consequence of a puncture or small wound, it has been supposed to arise from the partial division of a nerve. In this case a free dilatation of the wound should be made.—If arising from local irritation, the nervous communication with the brain should, if practicable, be cut off.

The second indication requires,

1. The most powerful antispasmodics, as opium with musk, camphor, and æther.

R. Camphoræ, Moschi, āā Ḑss: Fiat pulvis ex quovis vehiculo idoneo capiendus.

R. Camphoræ gr. viij; Moschi gr. vj; Pulveris Opii gr. ij: Fiat pulvis ex syrupo sumendus.

R. Misturæ Camphoræ Fortioris f̄ḥvij; Spiritus Ætheris Sulphurici Compositi; Syrupi Rhaados āā f̄ḥss; Tincturæ Opii f̄ḥj: Misce: sit dosis cochlearia tria magna.

R. Ætheris Rectificati f̄ḥij; Misturæ Camphoræ Fortioris f̄ḥvij; Syrupi Croci f̄ḥss: Fiat misturæ: dosis cochlearia tria ordinaria.

One of these formulæ should be administered every one, two, three, or four hours, according to the severity of the disease, and the effects of prior doses.

2. The cold bath, or affusion of cold water; successful cases of the use of which are related by Dr. Cochrane, in the Medical Com-

mentaries ; Dr. Wright, in the London Medical Observations ; Dr. Currie, in his Medical Reports ; and by others. [Tobacco clysters, by Drs. O'Beirne and Reid, of Dublin.]

The remedial agents employed by Dr. O'Beirne are tobacco, the guan elastic tube passed into the lower portion of the large intestine, and Croton oil. It was the general impression of the British Association, that Dr. O'Beirne's forthcoming work on Tetanus would prove a great boon to humanity and science. (*Op. Cit.*)

3. Mercurry ; administered both externally and internally so as to excite salivation.—It was also successfully employed by Dr. Clarke, as a *preventive* after wounds and punctures.

4. Peruvian bark ; and wine in large quantities. This plan was found successful by Dr. Rush, in the Transactions of the American Philosophical Society ; Dr. Hossack, in the New York Repository ; and Dr. Currie, in his reports.

5. Alkalis and alkaline baths ; a hot bath impregnated with carbonate of potass or quick-lime, was found serviceable by Dr. Stutz ; but in this country, physicians are not disposed to trust to such means.

6. The tinctura ferri muriatis has been successfully used, and the petroleum or oleum petrolei.

[Full doses of tartarized antimony, to allay inordinate muscular action might prove useful.]

7. Stimulating and antispasmodic applications.

R. Linimenti Saponis Compositi $f\bar{5}jss$; Tincturæ Opii $f\bar{5}ss$: Fiat embrocatio, cujus illinatur quarta pars ter in die in partes affectas.

R. Olei Cajeputæ $f\bar{5}jss$; Tincturæ Opii $f\bar{5}ss$: Fiat linimentum eodem modo utendum.

R. Tincturæ Cantharidis $f\bar{5}ss$; Linimenti Camphoræ $f\bar{5}j$; Tincturæ Opii $f\bar{5}ijj$; Liquoris Ammoniac Carbonatis $f\bar{5}j$: Fiat embrocatio partibus affectis applicanda.

EPILEPSIA.—EPILEPSY.

SPECIES.—1. *Epilepsia cerebralis* :—suddenly coming on without manifest cause ; not preceded by any troublesome sensation, unless perhaps of vertigo or dimness of sight.

2. *Epilepsia sympathica* :—without manifest cause ; but preceded by the sensation of a certain aura rising from some part of the body to the head.

3. *Epilepsia occasionalis* :—arising from manifest irritation, and ceasing when the irritation is removed.

SYMPTOMS.—Sudden loss of sense and power of motion, so that, if the patient be standing, he immediately falls, or, with convulsions, is thrown to the ground, frequently with a violent cry.—During the fit there are strong convulsive motions of the limbs and trunk of the body, and spasms of the muscles of the face and eyes.

producing various distortions of the countenance.—After a longer or shorter continuance of the convulsions, they cease altogether, and leave the patient motionless, still in a state of absolute insensibility, and under the appearance of a profound sleep.—The fit is frequently preceded by pain in the head ; lassitude ; some disturbance of the senses ; unquiet sleep ; unusual dread ; noise in the ears ; palpitation of the heart ; coldness of the joints ; sensation of a cold air, the *aura epileptica*, arising in some part of the extremities, and gradually creeping upwards, until it reaches the head, when the patient is instantly deprived of his senses, and falls as above described.

CAUSES.—*Predisposing*.—Great irritability of the nervous system ; hereditary predisposition.

Exciting.—Mechanical, chemical, or mental stimuli ; especially the effects of joy and surprise ; sudden fright ; fits of passion, or any vehement emotion of the mind ; plethora of the vessels of the head ; worms ; dentition ; acute pain ; excessive evacuations ; suppression of accustomed discharges ; tumours compressing the brain, or any part of the nervous system.

DIAGNOSIS.—*From convulsion*.—By its terminating in profound sleep ; by the total abolition of the senses.

From apoplexy.—By the voluntary motions in the one disease being increased ; in the other, totally suspended.

From hysteria.—See Hysteria.

PROGNOSIS.—*Favourable*.—The disease being sympathetic, occurring before the age of puberty, and arising from causes easy of removal ; there being no hereditary predisposition ; an intermittent fever, or cutaneous eruption, has sometimes effected a cure.

Unfavourable.—The reverse of the above. When the disease comes on after the age of puberty, when it has arisen from an hereditary predisposition, or by frequent repetition has become confirmed, the probability of cure is slight ; especially where the memory and judgment have become impaired.

TREATMENT.—*Indications*.—I. To abate the violence and shorten the duration of the paroxysm.

II. To prevent its recurrence.

If there be symptoms of determination of blood to the head, or if the patient be of a full plethoric habit, bleeding from the arm, the jugular vein, or from the temporal artery, will be advisable.

If, on the contrary, the presence of debility is obvious, the most powerful antispasmodics ; sinapisms to the lower extremities ; anodyne and antispasmodic clysters : but, in general, little else can be done, during the paroxysm, than to use the necessary precautions to prevent the patient injuring himself in the violence of the convulsions, and taking care there is no pressure on the vessels of the neck.

R. Tincturæ Assafœtidæ $\overline{3}$ ss ; Tincturæ Opii $\overline{5}$ j ; Aquæ destillatæ $\overline{3}$ viii j ; Fiat enema.

The recurrence of the paroxysm is sometimes prevented,

1. By removing causes that continue to operate.
 2. By avoiding the occasional or exciting causes; as, over-dilation of the vessels of the head, however induced; fits of passion, or other violent emotions of the mind, &c.
 3. If the paroxysm be preceded by the aura epileptica, it has been advised to apply blisters or caustic to the part from which the sensation arises: destroying the communication with the brain, by dividing the nerve, or by means of a ligature applied round the limb, has been resorted to, but with little success.
 4. If the patient be of a plethoric habit, by occasional bleeding; abstemious diet; issues or setons in the neck; [antimonial pustulation;] frequent purges, &c.
 5. If weak and irritable, by tonics; as cinchona, [quinine;] sulphate of zinc; oxyde of zinc; ammoniacal copper; sulphate of copper; nitrate of silver; [mistletoe and oak-bark.]
- R. Pulveris Cinchonæ ʒss; Pulveris Valerianæ ʒss: Fiat pulvis ter in die sumendus.
- R. Tincturæ Cinchonæ Compositæ fʒj; Tincturæ Valerianæ Ammoniatæ ℥xx; Infusi Quassie fʒxij: Fiat haustus ter in die capiendus.
- R. Zinci Oxydi gr. vj; Extracti Gentianæ gr. iv; Syrupi Zingiberis q. s.: Fiant pilulæ duæ ter in die capiendæ cum haustulo infusi anthemidis.
- R. Zinci Sulphatis gr. ¼; Extracti Anthemidis gr. x: Fiant pilulæ duæ ter in die sumendæ.
- R. Cupri Ammoniatæ gr. ij; Confectionis Rosæ gr. v: Fiat pilula ter quotidie capienda.
- R. Cupri Sulphatis gr. ij; Confectionis Rosæ ʒj; Extracti Opii gr. iv: Optimè misceantur in massam in pilulas xxiv dividendam, quarum capiat æger unam vel duas ter in die.
- R. Argenti Nitratis gr. j; Confectionis Rosæ gr. v: Fiat pilula ter in die deglutienda.
6. By regular exercise, especially walking and trotting a horse.
 7. By cold bathing.
 8. By antispasmodics; as valerian, castor, musk, æther, oleum succini, opium, [hyoscyamus, stramonium, acetate of lead, assafetida, in large doses.
- According to Dr. Brown, Dr. Reid of Dublin, and Mr. Earle, pressure on the carotids during the fit has cut it short, and finally cured the disease.]
9. When the attack of the disease can be foreseen by certain well-known feelings of the patient, an emetic given an hour before its approach has been known to prevent the fit; a large dose of opium also, or other powerful antispasmodic, administered in the same manner.

10. By digitalis, particularly if there be an accelerated pulse,

when it should be given in doses, gradually increased, until the pulse is influenced by it.

11. The rhus radicans, in the praise of which Dufresnoy and Hufeland have written, is said to have occasionally cured epilepsy: but we know nothing of it in this country.

12. By the cicutaria, which is said by Dufresnoy to be useful.

13. The carbonate of potass is recommended by Drs. Michaelis and Wiedemann.

14. By mercury, as an alterative.

15. By the nux vomica, which has often been successful. [I have found strychnine very efficacious in some cases.]

16. By the internal use of arsenic.

R. Līquoris Arsenicalis ℥ iv—viij; Tincturæ Cinnamomi fʒj; Syrupi Rhæados fʒj; Aquæ Pimentæ fʒxij; Miscē: fiat haustus ter in die sumendus.

17. By drawing electric sparks from the head.

18. By the viscus quercinus, or mistletoe, recommended by Dr. Frazier.

R. Visci Quercini Pulverisati ʒss—ʒj; Aquæ Menthæ Piperitæ fʒxij; Fiat haustus ter in die sumendus.

[Common oak bark, in doses of two drachms twice a-day, produced more benefit in a confirmed case than any other remedy.—*Mackintosh*. In many cases, all known remedies are useless.]

19. By oxygen gas, extolled by Dr. Girtanner.

20. The gratiola officinalis, praised by Dr. Sommer, in his treatise *De Virtute Gratiolæ*. [Mugwort, in doses of fifteen grains, before the fit, was advised by Burdach and Hufeland.]

21. By change of climate and mode of life.

CHOREA SANCTI VITI.—THE DANCE OF ST. VITUS.

SYMPTOMS.—The disease is marked by convulsive motions, somewhat varied in different persons, but generally affecting the leg and arm of one side only. The lower extremity is mostly first affected; there is a kind of lameness and imbecility in one of the legs; and, though the limb be at rest, the foot is often agitated by involuntary motions, turning it alternately outwards and inwards. In walking, the affected leg is seldom lifted as usual, but is dragged along, as if the whole limb were paralytic; and when it is attempted to be lifted, that motion is unsteadily performed, the limb becoming irregularly and ludicrously agitated. The motions of the arm likewise are variously performed, or it is drawn by convulsive retractions in a direction contrary to that intended.

CAUSES—General weakness and irritability of the nervous system; occurring between the tenth and fifteenth years of age. It is induced by various irritations; as teething, worms, offensive smells, poisons, affections of the mind, fright, horror, anger. [It

is supposed to depend on irritation in the cerebellum, or spinal cord.]

PROGNOSIS.—It is never attended with danger, unless very violent in degree, when fever supervenes, and it often kills. It passes not unfrequently into epilepsy. [It may continue for life, though this rarely happens. It occurs in adults of both sexes to the age of seventy. See Copland's *Dictionary of Practical Medicine*.]

TREATMENT.—*Indication.*—To increase the tone of the nervous and muscular system, [to improve the general health.]

After the administration of an emetic and mild aperient, tonics; especially the sulphate of zinc with musk, the antispasmodics, and other remedies, enumerated under the head Epilepsy.

Cold bathing and electricity.

Terror has sometimes effected a cure.

[Large doses of carbonate of iron generally cure this disease. Cod and tusk-liver oil, oil of turpentine, shower-bath, purgatives, antispasmodics, emmenagogues, strychnine, and quinine, have been praised as remedies.]

HYSTERIA.—HYSTERICIS.

SYMPTOMS.—The disorder attacks by paroxysms or fits, generally preceded by yawning, stretching, dejection of spirits, anxiety of mind, effusion of tears, alternate flushings and paleness, difficulty of breathing, sickness at the stomach, palpitation of the heart, profusion of limpid urine; generally an acute pain in the left side, about the flexure of the colon, with sense of distension, giving the idea of a ball or globe rolling itself about in the abdomen, and gradually advancing upwards until it gets into the stomach; thence removing to the throat, it occasions, by its pressure, the sensation of an extraneous body lodged there, which is called *globus hystericus*. The disease having arrived at its height, the patient appears threatened with suffocation, she becomes faint, and is affected with stupor and insensibility; whilst at the same time the trunk of the body is turned to and fro, the limbs variously agitated; wild and irregular actions take place, in alternate fits of laughter, crying, and screaming, incoherent expressions are uttered, a temporary delirium prevails, and a frothy saliva is discharged from the mouth.—The spasms at length abating, a quantity of gas is evacuated upwards, with frequent sighing and sobbing; and the patient recovers the exercise of sense and motion, without retaining any recollection of what has taken place; feeling, however, a severe pain in her head, and a soreness over her whole body. [During influenza with bronchitis, hysteria with delirium occurred daily at 3 o'clock, when the bronchial affection ceased, but again became urgent when hysteria disappeared. Singular illustrations are in Tate's work on Hysteria.]

CAUSES.—*Predisposing.*—Female sex; generally the unmarried, and between the age of puberty and the thirty-fifth year; also at-

taeks the more delicate of the male sex ; peculiar irritability of the nervous system ; studious and sedentary life ; grief ; anxiety of mind.

Exciting.—Excessive evacuations ; suppression of the menses or lochia, or the neglect of usual discharges ; great proclivity to venery ; violent emotions of the mind ; flatulent and aceseent regimen ; former diseases which have greatly impaired the tone of the primæ viæ ; imitation or sympathy.

Proximate.—A spasmodic affection of the uterus, according to Dr. Cullen ; [cerebellic or spinal irritation, according to recent writers.] See Spinal Irritation.

DIAGNOSIS.—*From hypochondriasis.*—Hysteria attacks the sanguine and plethoric ; comes on in early life ; its attacks are sudden, and accompanied with the globus hystericus ; it is diminished by time.—Hypochondriasis attacks the melancholic ; comes on about the middle age ; is gradual in its accession, and tedious in its progress ; it increases as life advances.

From epilepsy.—By the preceding symptoms, especially the profusion of limpid urine ; by the globus hystericus ; by the convulsive motions in the one disease having the appearance of design ; in the other obviously involuntary ; by the laughing, crying, and other symptoms above mentioned.

PROGNOSIS.—Hysteria is seldom attended with danger, unless in a very impaired constitution, or in cases where the fits are extremely violent ; when it sometimes passes into epilepsy, especially if there be a predisposition to that disease.

TREATMENT.—*Indications.*—I. To allay the spasmodic symptoms which constitute the fit.

II. To strengthen the nervous system during the intermissions of the paroxysms,

1. By bleeding ; if the patient be young and plethoric, and the attack be recent ; but in weak and debilitated constitutions, or when the disease is of long standing, it is inadmissible.

2. Stimuli applied to the nose ; as, the liquor carbonatis ammoniæ, spiritus ammoniæ aromaticus, spiritus ammoniæ succinatus, liquor volatilis cornu cervi, burnt feathers.

3. Rubbing the temples with æther.

4. Pediluvium.

5. Dashing cold water over the extremities.

6. Clysters ; simply laxative, or with assafœtida, castor, or opium ; cold water alone has been effectual.

7. Antispasmodics, internally, if the patient can swallow ; especially camphor, æther, ammonia, castor, assafœtida, opium, valerian. [Large doses of assafœtida, the best (Graves.)]

8. Cupping or leeching the part of the spine which is pained on pressure or percussio, and afterwards rubbing it with antimonial ointment, until a copious eruption appears. We should pustulate about four inches of the spine at first, and continue the application to the same extent, until the whole is affected.]

The second indication will be effected by,

1. Gentle evacuations from the primæ viæ.
2. By tonics; Peruvian bark, bitters, chalybeates, &c. such as are recommended against dyspepsia.
3. The occasional use of the antispasmodics above enumerated, [and emmenagogues, *secale cornutum*.—See Amenorrhœa.]
4. Regular exercise on horseback, with variety of scene.
5. Cold bathing in common water or the sea.
6. Mineral waters; especially those of Cheltenham and similar springs. [Change of life by marriage.]
7. The occasional spasms or cramps, to which hysteric women are subject, may be removed by the pediluvium, the warm bath, and by powerful antispasmodics, particularly opium, musk, æther, and camphor.
8. Cardialgia is relieved by an alkali; the liquor potassæ; liquor carbonatis ammoniæ; soda-water; the carbonates of that alkali, &c.—[See Pyrosis and Dyspepsia.]

HYDROPHOBIA.

SYMPTOMS.—At an uncertain time after a bite from a mad animal, mostly a dog or cat, sometimes not until several months have elapsed, wandering pains are felt in different parts of the body, restlessness, heaviness, disturbed sleep, with frightful dreams, sudden startings and spasmodic contractions, sighing, great anxiety, and dejection of spirits.

These symptoms increase; in some cases the bitten part becomes inflamed or painful: pains now attack the throat, and a sensation of suffocation occasionally takes place; an aversion is felt to the swallowing of water or other liquids; this arises to such a degree, that the moment any fluid is brought near the patient, or when the noise of the fluid is heard pouring out of any vessel, it occasions him to start with great dread and horror, and the attempt at deglutition is hurried, and accompanied with a convulsive paroxysm.

Bilious vomitings sometimes take place; a considerable degree of fever follows, with dry and rough tongue; the voice becomes hoarse, and the patient is constantly spitting a viscid tenacious saliva: extreme anxiety comes on, and a degree of irritability beyond expression; the slightest motion, or sudden change of position, will excite a sensation of suffocation and convulsions; delirium in some instances takes place; convulsions now become frequent, and the patient dies exhausted or in a fit.

TREATMENT.—*Indications.*—I. To prevent the absorption of the poison.

II. To counteract its destructive effects, when already introduced into the system.

The first indication is frequently effected by surgeons, who remove the bitten part by excision, caustic, and other means.

The second indication is seldom fulfilled ; various methods have been tried :—under an idea that the disease was inflammatory, the antiphlogistic plan has been strictly enforced ; in which case the treatment is very like to that of inflammatory fever.—Upon the idea that it was a nervous disease, antispasmodics have been resorted to ; and then the remedies recommended against epilepsy are proper.—Mercury has its advocates, which is to be employed so as to excite a mercurial action in the system as soon as possible.

[Guaco has been lately tried unsuccessfully, though declared to be an effectual remedy by American writers. Belladonna, and injection of warm water into the veins, have also failed. There is no cure or effectual remedy for this disease as yet known. In recent wounds caused by the bites of rabid animals, Sir David Barry proposed the application of a cupping-glass over the wound to prevent absorption.]

ORDER IV.

V E S A N I Æ.

CHARACTER.

Disorders of the judgment, without any pyrexia or coma.

GENERA.

A M E N T I A,	Fatuity.
M E L A N C H O L I A,	Melancholy.
M A N I A,	Furious madness.
O N E I R O D Y N I A,	Disturbed sleep.

MELANCHOLIA.—MELANCHOLY.

CHARACTER.—A partial chronic insanity, characterized by sadness, dejection of spirits, fondness for solitude, timidity, fickleness of temper, great watchfulness, flatulency, costiveness; delirium without fury, and unaccompanied by fever.—The mind pursues one certain object or train of thinking; which in general bears a near relation to the melancholic himself, or to his own affairs, creating the most groundless, yet anxious, fear, and generally accompanied with a desire of terminating his existence.

CAUSES.—Hereditary predisposition; powerful, depressing passions of the mind; the melancholic temperament in an exquisite degree; anxiety; grief; love for an absent object; excessive evacuations; intemperance in the use of spirituous liquors.

DIAGNOSIS.—*From hypochondriasis.*—By the dyspeptic symptoms being much less, or entirely absent; by the mental derangement being more considerable, and amounting to the melancholic delirium above described.

PROGNOSIS.—*Favourable.*—The disease arising from accidental circumstances, and being of short duration; supervening fever; diarrhœa; cutaneous eruption; the mind still capable of being diverted from its melancholy train of thought to other objects; sound sleep.

Unfavourable.—The disease being the effect of hereditary predisposition, or of the melancholy temperament exquisitely formed; its being of long standing; supervening epilepsy or palsy.

TREATMENT.—*Indication.*—To interrupt the attention of the mind to its accustomed object.

By presenting an interesting variety of objects, and subjects of attention; carefully guarding against the appearance of their being intentionally introduced.

By travelling ; by resorting to places of public amusement ; by the society of the gay and convivial ; by exciting passions of a nature opposite to those that have prevailed during the disorder ; rousing the courage and resolution of the timid ; cheering the gloomy with merriment and pleasure ; while the violent and passionate should be restrained by fear.

By the introduction of sports and rural pastimes ; and likewise of such employment as consists in a moderate exercise of the faculties of the mind : thus the literati may be amused with philosophical questions ; the farmer with discourses on agriculture ; and the sailor with naval affairs.

By music of the more exhilarating kind.

The melancholic may be conducted to the different places of summer resort, under the pretext of drinking the waters which they afford.

HYPOCHONDRIASIS.—VAPOURS—LOW SPIRITS.

SYMPTOMS.—Dyspepsia, sense of heat and pain in the hypochondria ; languor, listlessness, want of resolution and activity, disposition to seriousness, sadness and timidity as to future events ; an apprehension of the worst, and most unhappy state of them, and therefore upon slight grounds a dread of great evil. Particular attention to health ; and upon any unusual feeling, a fear of imminent danger, and even death itself. In respect to all these feelings and apprehensions, the most obstinate belief and persuasion.

CAUSES.—*Predisposing.*—The melancholic temperament.

Exciting.—All the causes of dyspepsia ; every sedative impression upon the mind.

Proximate.—A torpid state of the brain and nervous system.

DIAGNOSIS.—*From dyspepsia.*—By the affection of the mind being greater, that of the stomach less, than idiopathic dyspepsia. Hypochondriasis occurs only in the melancholic temperament, at the middle period of life, and is increased as age advances ; dyspepsia chiefly occurs in the sanguineous temperament, at an early period of life, and is diminished by time.

PROGNOSIS.—*Unfavourable.*—The melancholic temperament exquisitely formed, as indicated, previously to the disease, by the usual mental and corporeal characteristics, when, not unfrequently, it terminates in confirmed melancholia ; combined with other diseases, which are aggravated by a diminished energy of the brain and nervous system ; the long continuance of the disease often inducing scirrhus of the viscera, and various cachectic affections.

TREATMENT.—*Indications.*—I. To restore the energy of the brain and nervous system ; and to obviate the morbid association of ideas, by which the disease is characterized.

II. To remove the dyspepsia and other concomitant symptoms.

The first indication can alone be accomplished,

By diverting the attention of the patient from his own feelings by change of scene ; engaging his attention by new and interesting objects ; convivial society ; various amusements and rural sports ; moderate and regular exercise ; gaining his confidence ; condoling with him rather than ridiculing his foibles ; and persuading him of a gradual recovery from his ideal illness, by some innocent medications regularly administered.

The second, by,

1. The treatment laid down for the cure of dyspepsia.

2. Chalybeate mineral waters : Cheltenham, Brighton, Hampstead, and Tunbridge.

3. Tonics and antispasmodics ; particularly Peruvian bark, quinine, preparations of iron, castor, camphor, valerian, assafœtida, opium.

4. Blisters and sinapisms.

5. Mercurial purges.

6. Mercury, even carried so far as to affect the mouth, has been attended with much success.

7. Warm and cold bathing.

8. The mineral waters recommended for dyspepsia, and also Harrogate water.

9. Light nutritive diet, as common drink, wine and water, wine and soda-water, should be substituted for malt liquors.

The violent pains in the head and stomach, to which hypochondriacs are subject, may be relieved by æther, musk and opium, separately or combined.

R. Tincturæ Castorei f5ss ; Spiritûs Ammonię Compositi f5ss ; Misturæ Camphoræ f5xij ; Syrupi Aurantii f3j ; Fiat haustus ter in die sumendus.

R. Decocti Aloes Compositi f5jss : Fiat haustus circa meridiem quotidie sumendus.

R. Decocti Aloes Compositi f5v ; Aquæ Menthæ Piperitæ f3x ; Spiritûs Ætheris Sulphurici Compositi f3j ; Syrupi Aurantii f3j ; Fiat haustus bis in die capiendus.

R. Tincturæ Valerianæ f5j ; Tincturæ Castorei f5ss ; Misturæ Camphoræ f5xij ; Syrupi Zingiberis f3j ; Fiat haustus ter in die hauriendus.

R. Spiritûs Ammonię fœtidi f3j ; Misturæ Camphoræ f5xij ; Magnesię Sulphatis ʒj ; Syrupi Aurantii f3j ; Fiat haustus ter in die capiendus.

R. Castorei 5ss ; Camphoræ ʒj ; Pilulæ Galbani Compositæ ʒjss : Fiant pilulæ xxxvj quarum sit dosis due ter in die, superbibendo cyathum parvum infusi anthemidis.

MANIA.—FURIOUS MADNESS.

SYMPTOMS.—Delirium without fever ; severe pains in the head ; noise in the ears ; redness of the face ; peculiar wildness of the countenance ; rolling and glistening of the eyes ; grinding of the

teeth; loud roarings; violent exertions of strength; absurd incoherent discourse; unaccountable malice to certain persons, particularly to their nearest relatives and friends; a dislike to such places and scenes as formerly afforded particular pleasure; a diminution of the irritability of the body with respect to the morbid effects of cold, hunger, and watching; together with a full strong pulse.

Maniacs have frequently lucid intervals; hence called lunatics.

CAUSES.—Hereditary predisposition; sanguineous temperament; violent and stimulating emotions of the mind; uncurbed and immoderate indulgence of any passion; violent exercise; frequent intoxication; sedentary life; abstruse study; suppression of periodical and other evacuations; excessive discharges; [parturition or lactation;] tumours compressing the brain; preceding attacks of epilepsy, fever, &c.

Proximate.—Increased and inordinate excitement of the sensorium.

DIAGNOSIS.—*From phrenitis*.—By the latter being accompanied with fever, the former not.

PROGNOSIS.—*Favourable*.—The mania arising in consequence of some other disease; the attacks being slight, and not frequent in their recurrence; hæmorrhage; diarrhœa; scabby angry eruptions; hæmorrhoidal or menstrual discharge; supervening fever.

TREATMENT.—*Indications*.—I. To gain a perfect command over the maniac.

II. To diminish the preternatural action of the brain.

The first indication is sometimes to be effected by gentle and conciliating treatment; but more frequently by inspiring him with awe and dread by coercion; tempered, however, with proper mildness and humanity. Upon gaining the confidence of the maniac will in a great measure depend the success of the after-treatment.

The second indication is sometimes filled by,

1. Engaging the patient in some exercise or pursuit, that will employ at once both the body and the mind; and thus divert the latter from pursuing one invariable train of thought; removing him from those objects with which he was formerly acquainted; frequent change of scene; a spare and low diet.

2. By bleeding; if he be of a plethoric habit, and the attack recent.

3. Purging; both the drastic and the cooling purgatives have been recommended—perhaps the former are preferable; hellebore, senna, jalap, gratiola.

4. Emetics of sulphate of zinc, or antimonium tartarizatum.

5. Cold bath. Many cases are related of the success of this remedy in various publications.

6. Sedatives; as conium; hyoseyamus, or the union of these with camphor; digitalis. Opium has in general been found preju-

dicial ; opiate friction has, however, been successfully used by Dr. Chiarugi of Florence.

7. Nauseating medicines ; as antimonium tartarizatum, in small and frequent doses.

8. Blisters to the head : setons or issues in the neck.

9. Should madness be the consequence of great debility, as sometimes happens at the close of fever, the opposite of the above treatment will be required ; as a nutritive and restorative diet ; Peruvian bark, and other bitters ; chalybeates, &c.

10. All cases that seem to be connected with serofulous disease, syphilis, or cutaneous eruptions, should be attacked by a long course of antiserofulous and antiveneereal medicines.

[According to the received opinion of the profession, we should not grant a certificate for the committal of an insane person to an asylum, unless he threatens violence to himself or others, or intends to destroy property.—*Connolly*. It is impossible to comprehend what the law considers insanity ; “ for it is neither lunacy, idiocy, imbecility, or incompetency to manage affairs.”—*Amos*. See my *Manual of Medical Jurisprudence*, 1836. Dr. Haslam maintained, in Bagster's case, that he considered that no person's mind was sound, unless that of the Deity. This confirms the adage—“ *Nemo mortalium omnibus horis sapit.*”

Amentia is a gradual diminution of the powers of the mind, with weakness or loss of memory, incoherence of ideas and actions, which have no determinate object. This disease most commonly occurs to persons advanced in life, and is not accompanied by fever, or any disturbance of the organic functions. It is caused by some affection of the brain, as chronic arachnitis, and is generally incurable.

Idiotism consists in a defective developement of some part of the brain, either at birth or before the full evolution of the understanding. In these cases the whole of the functions are defective, the general sensibility is but partially established, the limbs are emaciated, or often paralysed or ill-formed, and the power of articulation is so defective, that the individual rather howls than speaks. There is no perceptible alteration of digestion, circulation, or respiration.

Cretenism is a variety of idiotism, presenting the following physical characters : head rather large, forehead and occiput rather flattened, visage square, mouth very wide, ears thick and elongated, goitres of variable size and pendent towards the chest, thorax narrow and flat, genital organs much developed, height seldom above four feet. There is a deficiency of organization in the brains of idiots.

DELIRIUM TREMENS.

This is the brain fever of drunkards, *delirium a potu*, *delirium*

ebriositatis. There is total want of sleep, delirium, during which the patient recognises his friends or acquaintances, quivering and tremulous motion of the lips, hands and muscles generally, and more particularly on making any effort either of speaking or of movement. There is incessant talking, and the sufferer fancies that some great evil has befallen him. The skin is cool and clammy, the pulse small and rapid, and there is no sleep, unless produced by narcotics, until the third day. All the signs of the disorder prove it to be a nervous affection, a disorder of innervation, which is best and most effectually relieved by the exhibition of the habitual stimulus, with or without sedatives. I proposed this plan in 1827, having found it succeed, after every other method had failed.—See also Mr. Lucas' paper in the *Lancet*, 1834.

There is another kind of delirium tremens complicated with congestion or inflammation in the brain, lungs, &c., the pulse is frequent, full and hard, the countenance is flushed and the hot skin. Moderate depletion will be necessary to subdue inflammatory action, and afterwards the habitual stimulus will be required, as the delirium will be aggravated by the bleeding. I have repeatedly observed cases of this kind, and there are two related by Sir Astley Cooper in his lectures, of erysipelas of the scalp in drunkards, which defied depletion, and were cured by the exhibition of ardent spirit. I have treated a similar case by the same means with complete success, after three surgeons had despaired of the patient.

The free use of the sedative preparations of opium, morphia, black drop, &c., are required to procure sleep; but they often fail, when the habitual stimulus will succeed.

DISEASES OF THE SPINAL MARROW AND ITS MEMBRANES.

The spinal marrow and its membranes are liable to the same diseases as the brain and its coverings, inflammation, (myelitis) arachnitis, meningitis, ramollissement, or softening, concussion and compression, hydrorachitis, tumours of the medulla spinalis and its tunics, spinal irritation, relaxation, incurvation, excorvation, lateral inflection.

Myelitis and Ramollissement.—This disease is caused by contusions in the vertebral column; there is pain in the affected part followed by inflammation accompanied by a sensation of pricking and darting in the muscles of the back and extremities. There is no derangement of the intellectual faculties or of the senses, unless when the inflammation extends near the pons varolli, in which case there may be total loss of sense, with aphonia, trismus, paralysis of the whole body, retroversion of the head, embarrassed respiration, and involuntary elevation of one or both arms towards the head. Children are often affected with this disease in consequence of falls on the head or spine; and by carefully attending to the symptoms, the diagnosis is evident.

When the cervical portion of the spine is affected, there is rigidity of the neck, permanent contractions or convulsions of the superior extremities, succeeded by paralysis and disturbed respiration.

When the dorsal portion is affected, the body is sometimes agitated by continued convulsive motions; there are palpitations, fever, and difficult respiration. In fine, when the lumbar portion is inflamed, there is paralysis of the inferior extremities, constipation, and retention of urine or involuntary evacuations.

In some cases the disease comes on insidiously, is unaccompanied by pain, and finally succeeded by paralysis of the bladder, rectum and inferior extremities. The disease is sometimes confounded with lumbago, rheumatism, incipient spinal curvature and neuralgia of the lower limbs. Spinal arachnitis is characterised by a general contraction of the posterior muscles of the trunk, producing opisthotonos.—See Tetanus.

During acute spinal meningitis there are contraction of the limbs, and rigidity of the muscles, which may be constant or remittent. In cases of myelitis, in which the substance of the medulla is inflamed, there will be softening and paralysis.

The progress of the disease is rapid, and its termination is generally fatal from the tenth to the fourteenth day.

Treatment.—Venesection, leeches, cupping, refrigerant lotions, warm baths and drastic purgatives. When collapse supervenes, these measures are to be discontinued and the strength supported by diffusible stimuli, and by injections of cinchona, opium and musk.—(See Typhus.)

When the disease becomes chronic, and there is paralysis with shaking or stiffness of one or both limbs, blisters, moxas, galvanism and acupuncture may be used with advantage.

Tumours of the medulla spinalis and its membranes are tuberculous, scirrhus and hydatid, and their nature cannot be accurately determined during life.

HYDRORACHIS.—SPINA BIFIDA.

This disease is congenital and consists in one or more tumours on the lumbar, dorsal or cervical vertebræ, which communicate with the medulla spinalis. The tumour varies in size, is often transparent and the colour of the skin may be natural, redish or livid. If pressure be made on the tumour it induces signs of compression of the brain. The limbs are imperfectly developed, and the rectum and bladder are often paralysed. The skin may be absent, and in such case the tumour is covered by the dura mater, pia mater, and arachnoid membrane; and the pia mater is congested and red.

In some cases, the lateral arches of the corresponding vertebræ are separated or wanting. The cavity of the arachnoid contains a

fluid, which may be serous, transparent, sanguinolent or purulent, may communicate with the brain; or be merely enclosed in the pia mater. In other cases there is a division of the medulla or it is entirely absent where the tumour is situated.

Treatment.—Moderate pressure has been employed to excite the absorbents to remove the effused fluid; but this is scarcely ever effected. Sir Astley Cooper used a small truss for the purpose. When this failed, he punctured the tumour repeatedly with a fine needle and again applied pressure. Subsequent experience has proved that both plans are ineffectual, and that the disease does not admit of cure.

SPINAL EFFUSIONS.

Serous effusions occur within the spinal canal as well as in the skull, and may be situated external to the dura mater, or within it, or beneath the arachnoid membrane, which invests the medullary cord.

Extravasations of blood may occupy the same situations, and are induced by falls, blows, slips, or other injuries of the spine, as by making violent efforts, as pulling on one's boots, drawing a cork, or raising a heavy load. It is also a fact that effusions of blood have been found in cases in which no accident had occurred, and the symptoms were pain in the back, spasmodic contractions of the muscles, paralysis of the bladder, rectum and lower extremities, convulsions, or coma, and death.

The membranes of the spinal cord may be thickened and indurated, like those of the brain, and from the same causes, as injuries. In some cases there are fungous growths on the dura mater, which produce pressure and paralysis.

In fine, the substance of the spinal cord may become firmer than natural, after congestion or inflammation.

The treatment in all these cases is the same as for Myelitis—issues, setons, antimonial ointment, and other counter-irritants.

The spinal medulla is liable to concussion and compression like the brain, and these are induced by external injuries, whether inflicted on the back, or by falls on other parts of the body. The treatment is similar to that employed in the same diseases of the brain.—See pp. 30—165—170—175.

SPINAL IRRITATION.

This is a common disease in young women, and arises from relaxation of the ligaments, or from some degree of spinal excurvation, lateral inflection or curvature or incurvation. Few girls or young women in cities are free from this complaint. They complain of pain in the left side under the false ribs, embarrassed respiration, palpitation of the heart, intolerance of tight lacing on the chest or back, hysteria, nervousness, disordered bowels, constipa-

tion, and deficient or depraved menstruation. There is indigestion, with flatulence, occasional tension of the abdomen, costiveness, lowness of spirits, irritability of temper, and extreme sensibility of the nervous system.

These disordered functions are aggravated after marriage, but especially during lactation and pregnancy—the sufferer is constantly complaining of pains or unpleasant sensations of all parts below, and in time, above the affected vertebra.

On making pressure with the index and middle finger of the right hand on the vertebrae from the neck to the lumbar region, we invariably discover one or more points which are painful. In some cases it will be necessary to percuss each vertebra with the fingers, before we can detect the affected one. There are other instances in which we find one shoulder higher than the other, and more or less spinal curvature.

The frequency of spinal irritation in the softer sex is caused by sedentary pursuits during childhood, and the baneful custom of tight lacing and want of active exercise.

Treatment.—When there is pain on pressing any of the vertebrae, a few leeches or cupping ought to be employed, and then the antimonial ointment. The digestive function and general health should be improved, and particular attention paid to the establishment of healthful menstruation.

In most cases where there is simple spinal irritation, without deformity, a cure will be effected by local depletion, counter-irritation and attention to the general health.

APPLICATION OF PERCUSSION AND AUSCULTATION TO DISEASES OF THE HEART.

We now commence a most important class of diseases, which have been hitherto almost unknown, and even as yet are but little studied by the majority of practitioners. A concise but comprehensive account of diseases of the heart, from the latest and most accurate observers, cannot fail to prove instructive to many medical readers. I may be permitted to add, that I have closely investigated diseases of the heart in public practice, as a numerous class of attentive medical students can verify, as well as in private practice, and, therefore, introduce the result of my own experience with that of others.

DISEASES OF THE HEART IN GENERAL.

Diseases of the heart and pericardium should be studied in the following order according to M. Bouillaud, whose observations, as the latest, and I believe the most correct, I shall present in the

following article on this portion of pathology.* 1. Their precise site and anatomical characters. 2. The signs and diagnosis of these diseases. 3. Their causes. 4. Their nature and classification. 5. Their progress, duration, and terminations. 6. Their prognosis. 7. Their treatment. 8. Their complications with each other, and with diseases of other organs.

1. *Topography of Diseases of the heart and their anatomical characters.* Disease of the whole heart is extremely rare, and no example has been hitherto recorded. Displacement of the organ does not form an exception to this position. Disease is generally confined to a certain part of the heart; as to a cavity or a certain portion of a cavity, or to the tissues which compose it. Thus the parietes of one or more cavities of this organ may be atrophied (thinned) or hypertrophied (thickened) with or without dilatation of the cavities; softened or indurated, &c.; or the valves and orifices may be primarily or specially altered. In other cases, the disease may be exclusively or principally, in the internal or external membrane, in the fleshy substance of the heart, &c. The lesions of this organ should be explored with the scalpel, chemical re-agents, and according to pathological anatomy; and we examine both its solid and fluid constituents. We investigate its molecular (Cruveilhier) and its physico-chemical anatomy, (Raspail.) Like all other organs, the heart is subject to functional derangements, which are not visible, tangible or appreciable, and similar to all others, it is liable to various changes of structure.

2. *General considerations on the physiological characters and diagnosis of diseases of the heart.* It is not difficult in the present state of science to determine the *anatomical* and *medical* diagnosis of cardiac diseases. These have been divided into local, general, sympathetic, and reactive, or dependent on reaction.

Of all the means of recognising disease of the heart, auscultation and percussion, with palpation and inspection are the best and most decisive.

There are two principal modes of re-action caused by diseased heart upon the entire system of the whole animal economy, and upon the different parts which compose it in particular. This re-action may be purely physical or mechanical, as in cases in which an enlarged heart displaces the lungs, and compresses them, &c.; and also in cases in which induration of its valves and contraction of its orifices oppose the free passage of the blood, and occasion passive congestions in many organs, &c. This re-action is also said to be sympathetic and vital, when it terminates in febrile inflammation of the tissues of the heart. But in this case the re-action is multiplied; for while it is dynamic or vital, it also has a second-

* *Traité Clinique des Maladies du Cœur, précédé de Recherches nouvelles sur l'Anatomie et la Physiologie de cet organe.* Par J. Bonillaud, Professeur de Clinique Médicale, &c. 1836.

any influence by suppuration, which may partly infect the blood ; and when the products of inflammation are not absorbed, they may mechanically obstruct the free exercise of the functions of the inflamed organ. It may be here remarked, that the morbid diffusion in the first case is very variable according to many circumstances, such as the greater or less sensibility of the patient, the greater or less acuteness of the disease, &c.

The influence of certain organic diseases of the heart on the general circulation and on the special circulation of certain viscera, as the lungs, liver, spleen and brain, is very powerful. It has frequently happened, that the secondary or symptomatic lesions which arise from this cause, were mistaken for primary or idiopathic complaints, and at other times were confounded with purely functional or nervous disorders. Who does not know, that before the admirable work of Corvisart, patients were supposed to labour under spasmodic, nervous and essential asthma, whose real complaints depended upon organic disease of the heart and large vessels. It is lamentable to state, that even in our times this error is too frequently committed. I have known many instances, and in one case, a gentleman had been bled from the arm no less than forty times for the supposed asthma, though after the first interview I declared his complaint was disease of the heart, that he most probably would be affected with dropsy in a short time, a diagnosis that was proved by autopsy four months afterwards.

It will appear by the particular history of each of the diseases of the heart, that it may be as precisely known as that of any other organ or part of the body. Thus when the left ventricle is the seat of considerable hypertrophy, the face is generally red, animated, and the eyes brilliant ; giddiness supervenes ; and when the reaction is at its *acmé*, frequent and profuse hæmorrhages from the nose, and even cerebral hæmorrhage manifest themselves. When, on the contrary, the right ventricle is considerably hypertrophied, which is a rare occurrence, there is slight spitting of blood, and in some cases, pulmonary apoplexy. The explanation of this difference is so simple and so well known to any educated medical practitioner, that it need not be mentioned here. If the course of the blood through the orifices and cavities of the heart encounters some strong obstacle, as happens in induration of the valves with marked contractions of the orifices to which they are adapted, there will be disturbance of the arterial, venous, and capillary circulation, according to the seat of the obstacle. Thus, when the obstacle is in the left cavities of the heart, the system of the pulmonary veins and the lung itself will feel the first effects, and then in succession the right cavities and veins which empty themselves into the right auricle. If, on the contrary, the obstacle is in the right cavities of the heart, the superior and inferior cava, the veins of the liver, (*vena porta*,) those of the spleen, brain, and face, which empty themselves into the right auricle, become engorged with

blood, and hence the passive congestions in all the parts just enumerated. These congestions have been erroneously attributed to certain lesions of the right cavities exclusively; but they may likewise accompany those of the left cavities; and it is certain, nevertheless, that they occur more rapidly, and in a higher degree, in the first than in the second; whilst passive engorgement of the lungs is not so immediate and necessary a consequence of obstacles to the circulation in the right cavities as those which are situated in the left. A due consideration of these facts will enable us to perceive the dangerous influences of diseases of the heart on those of the lungs, on the brain by predisposing to apoplexy, cerebral congestion, and various other diseases; on the serous and cellular tissues, by congesting them and giving rise to general dropsy, (anasarca), or œdema, or local dropsy (ascites, hydrothorax, hydrocephalus, &c.) Thus we observe the vast importance of *anatomical, physiological and medical* diagnosis of organic diseases of the heart.

3. *General Considerations on the Causes of Diseases of the Heart.*—It is very remarkable that the causes of diseases of the heart have been almost overlooked until the present period. The consideration of diseases of the heart is one of the most recent points of pathology, and is as yet but partially known to medical practitioners. The causes of diseases of the heart, like those of every other organ, offer, without doubt, peculiarities which those of other organs do not present; but it is no less true, that many of the diseases are developed under the same influences as those of all other organs in general. It is astonishing that this important truth has been until now, if not entirely unknown, at least very little attended to. There is no physical or moral influence, strictly speaking, which belongs to the study of physiology, which cannot, under certain circumstances, act as a predisposing or exciting cause of some disease of the heart. This is easily understood, when we reflect on the extensive and complicated influence which the heart possesses, as well as its intimate relations with the other organs of internal and external life, and, consequently, with external objects themselves. A vast number of conditions of external agents, violent exercises, the irregularities of regimen, vivid moral affections, &c. &c., are more or less powerful causes of diseases of the heart. This organ is also affected by acute and chronic diseases, and more particularly by febrile complaints, which are an especial and new source of morbid conditions, unfortunately as yet too slightly studied.

Numerous diseases of the heart itself may become exciting causes of other maladies of this organ. Thus, for example, a contraction of some one of the orifices terminates by causing a dilatation of the cavity of the heart, situated behind or above it; and violent palpitations may rupture a fleshy column, or a valvular tendon, or the parietics of the heart themselves, &c. &c. This po-

sition will be further verified by many future observations on the diseases of the heart.

The causes of diseases of the heart may be divided into three classes: 1. Mechanical and traumatic causes; 2. Physico-chemical causes; 3. Moral causes. Each of these classes comprehends a vast number of species.

This is not the place to enter into details of the long series of different kinds of exciting causes of the numerous diseases of the heart, but it may be useful to devote a few lines to the examination of the moral influences and atmospheric conditions.

The moral influences are among the most frequent causes of diseases of the heart. Corvisart was of opinion that "no one could doubt the fatal physical influences of the passions on the heart, and that organic lesions of this part were much more frequent during the horrible times of revolution than in the ordinary calm of social order." M. Bouillaud doubts this assertion, and says that statistical documents are wanting to verify it. M. Schina, an Italian physician, has lately published a volume on the influences of the passions in causing diseases of the heart.

M. Bouillaud also contends, contrary to the opinion of Corvisart, that atmospheric vicissitudes are among the most common causes of pericarditis, as well as pleurisy and acute articular rheumatism, which is an inflammation of the serofibrous tissue of the articulations; that is to say, an articular pericarditis. He remarks, that rheumatismal pericarditis is well known; but he gives the important information that it may extend to the lining membrane of the heart, which he has termed endocarditis, or internal pericarditis, "which is often complicated with rheumatismal pericarditis; and the history of its consequences in an acute and chronic state is, in his opinion, destined to change the pathology of the heart." Lastly, the influence of predisposition and hereditary transmission is not less evident in the development of diseases of the heart than of any other organ. (Corvisart, Lancisi, Albertini, Bouillaud, Wardrop, Corrigan, &c.)

4. *General Considerations on the Nature of Diseases of the Heart, and their Classifications.*—It is manifest that, without a preliminary knowledge of the anatomical characters, or the physiological phenomena, and the causes of diseases of the heart, it will be impossible to determine the nature, or the methodic or philosophical classification of these diseases. It is for this reason that I have given the anatomy, physiology, and pathology of the heart on a former occasion: but the nature of its diseases in general ought to be deduced from the knowledge of the anatomical alteration, lesions of functions, and the pathogenic causes.

The nature of the diseases alone should be taken for a precise and satisfactory classification of the diseases of the heart, and not their symptoms or anatomical characters. If we take, for instance,

the anatomical characters for the foundation of a classification, one and the same disease, pericarditis, for example, will belong to a number of different diseases, since its anatomical characters are so various. If the symptoms are taken for the basis of a classification, it will be the same. We may, however, class the symptoms and anatomical characters of diseases, but there will be an immense difference between this classification and a true nosological system.

It is remarkable that neither Corvisart nor Laennec, nor preceding authors who wrote on diseases of the heart, attempted to arrange a scientific classification.

Dr. Schina is the only author who has tried to submit diseases of the heart to a truly scientific classification, such as has been mentioned. He has divided them into two orders, each of which has two classes. The first class comprehends dynamic diseases; (*apparentemente dinamiche*;) the second, organic diseases, with dynamic predominance; (*organische con predominio dinamico*;) the third, dynamic diseases with organic predominance; (*dinamiche con predominio organico*;) the fourth, diseases simply organic (*simplicemente organische*.) This author has placed a mixed genus between the two first and the two last classes; that which is found between the two first classes is devoted to dynamico-organic diseases with dynamic predominance (*dinamico-organiche con predominio dinamico*;) the intermediary genus of the last two classes embraces dynamico-organic diseases with organic predominance (*dinamico-organiche con predominio organico*.)

This classification is not so clear, in the opinion of M. Bouillaud, as can be desired, as the species comprised in each class and in the two mixed genera, are not distributed in a methodic manner; thus, for example, inflammation is found at one time in the first class, at another in the third, and also in the intermediary genus to the first and second class.

Thus Dr. Schina places acute inflammation without apparent traces of material lesion in his first class; (*infiammazione acuta, suppurata, senza reliquia di apparente lesione materiale*;) then acute, subacute, and slight inflammation following material lesions of dynamic quality, in his third class; (*infiammazione acuta o lenta, seguita, da lesioni materiali di qualita dinamica*;) and, lastly, he places in the intermediary genus the same degrees of inflammation succeeding material lesions of dynamic quantity (*infiammazione acuta o lenta, seguita da lesioni materiali di quantita dinamica*.) It must certainly be admitted that these distinctions are anything but remarkable for precision or clearness. This classification is open to many other objections equally cogent.

Dr. Hope proposed the following classification: 1. Inflammatory affections; 2. Organic affections; 3. Nervous affections; 4. Different affections, which cannot be placed with the preceding.

He admits that he is not satisfied with this arrangement. In his opinion, inflammatory affections and organic lesions are not so intimately connected that they might not be separated.

It is evident that many lesions termed organic may and ought to be separated from inflammation; and it is no less certain that among the lesions of this kind there are some which are indissolubly united with inflammation, as Dr. Hope has admitted, when he has classed pericarditis with adhesions of the pericardium with the heart. "If," says Dr. Bouillaud, "this author has succeeded in proving a sound doctrine, in referring cellulous or fibrous adhesions, white or milk-like patches, and fibro-cartilaginous productions, observed on the external surface of the heart and in the pericardium of certain subjects to inflammation, he has fallen into a manifest contradiction in considering the same organic lesions as *essentially* independent of inflammation, when they occupy the internal membrane of the heart, (endocarditis,) which constitutes a true internal pericarditis. According to this method, it is sufficient to see that Dr. Hope has placed organic lesions of endocarditis among the consequences of inflammation, while he ranges, on the contrary, among special organic lesions, or non-consecutive on inflammation, the results of pericarditis, such as adhesions, certain vegetations, &c."—*Op. Cit.*

M. Bouillaud offers the following classification of diseases of the heart:—

The first class comprises all the lesions which affect the heart and its external structure in a purely physical and mechanical manner, as its position, form, colouration, extent, reciprocal disposition of its different cavities, &c. &c. Then, solutions of continuity or of contiguity, dilatations, and contractions. These lesions are for the most part passive.

In the second class are diseases in some alteration of the vital conditions, functions, or physiological actions of the heart. The lesions of this class are essentially active, and, like vital actions, are divided into two orders, such as Bichat has comprised under the name of organic or nutritive, and those that he has comprised under the name of animal life. M. Bouillaud divides this second class into two orders; the one affects the function of organic life and of vital chemistry, or of physico-chemical life; the other is devoted to lesions of the functions of animal life, or excitation, or dynamic. To the first order belongs, under different genera, hypertrophy of the heart, in which the nutrition is augmented; atrophy, in which the nutrition is diminished; active hydropericardium, in which the secretion of the pericardium is augmented; inflammation of the different tissues of the heart, disease in which nutrition, secretion, absorption, capillary circulation, in a word, all the functions of organic or physico-chemical life are more or less profoundly altered,—the different secretory results of normal products in quantity and quality.

The genera and species of diseases in the two great classes which have been indicated, are founded on the different lesions of the various tissues of the heart.

5. *General Considerations on the Progress, Terminations, and Duration of Diseases of the Heart.*—There is a great difference between the progress of different diseases of the heart; thus, for example, between pericarditis, endocarditis, solution of continuity of some parts of the heart, and a purely nervous affection, such as palpitation, syncope, &c. Rupture of the parietes of the heart has no duration; it progresses with the rapidity of lightning, and it terminates in as sudden death as can be imagined; whilst nervous palpitations continue for very many years, are regular, irregular and intermittent, and terminate without leaving any alteration in the structure of the heart.

The physico or chemico-vital diseases of the heart are those whose progress, duration, and variable terminations it is most important to make known.* These diseases are like the analogous ones in all organs in general, progress slowly or rapidly, passing precipitately through their different degrees, and continuing only a few days, or describing slowly the course of their developement, and their duration occupying several weeks, months, or years. Those which follow the first course are called *acute*, and those that follow the second are termed *chronic*, the latter being frequently consecutive on the former, and being their termination. But all the species of the class of diseases under consideration do not pass with the same facility into the acute and chronic form.

Thus hypertrophy and atrophy of the heart, (augmentation or diminution of nutrition of the different tissues of this organ, and especially of its muscular substance,) never develope in an acute form, but slowly. Increase and diminution of secretion obey the same law. Nevertheless, it is certain, that there are cases of hydro-pericardia, (hydrops pericardii,) which occur suddenly, and are really acute.

The ramollissemments or softenings of the heart, which manifest themselves, independently of all actual or antecedent inflammation, during the course of certain general or constitutional affections, (scurvy, serofula, or purulent diathesis, or infection, &c.,) are subject to the progress which attends these last diseases; and if they are sometimes *acute*, they are also sometimes *chronic*.

When we consider the importance of the heart in the animal economy, we can readily comprehend that when it is affected with violent and extensive acute inflammation, death will often happen in a few hours.

* The abbreviate terms physico or chemico-vital are applied by M. Bouillaud to diseases which consist in some perturbation of physical, chemical, or physico-chemical action by which internal or organic life is revealed to us, as exhalation, absorption, secretion, nutrition, &c.

It is not correct to ascribe all the diseases of the heart to acute or chronic inflammation, no more than it would be those of any other organ. Thus many diseases are independent of both states of inflammation. No doubt many degenerescences of the heart and all other parts of the body have succeeded acute or chronic inflammation, but there are many which do not. Thus it would be absurd to ascribe urinary calculi, calculi in different organs, worms, hydatids, and different insects, which are accidentally developed in different parts of the body, to either acute or chronic inflammation in the parts in which they appear.

I cannot agree with Laennec that the terms disease and inflammation are synonymous.

The progress of most of the diseases of the heart, as to type, is continued, though that of some is intermittent, such as the neuroses of the organ. Corvisart was of opinion, that organic diseases might be intermittent, and that they occurred with such periodicity, that they might be confounded with certain periodical disorders, such as asthma, &c. He instanced aneurism of the aorta, which sometimes resembled convulsive asthma. M. Bouillaud very properly considers this a contradiction of terms, and concludes, that when organic diseases assume an intermittent type, it is because they are complicated with an intermittent neurosis of the heart. Every careful observer of organic diseases of the heart, is well aware of the fact, that the symptoms of these maladies will frequently present paroxysms, more or less violent, without any known or appreciable cause, or as the consequence of excess or irregularity in regimen, violent exercise, a vivid moral affection, certain atmospheric conditions, &c. &c. These causes excite dyspnoea, and aggravate supposed asthma, when the real disease is one of the heart. In this class of maladies, auscultation is invaluable, as it enables us to form a correct diagnosis and a judicious treatment.

6. *General Considerations on the Prognosis of Diseases of the Heart.*—*Hæret lateri lethalis arundo*, was the epigraph at the head of Corvisart's work on Diseases of the Heart. He believed it sometimes possible to prevent the disease, but never to cure it. This was also the conclusion of Senac. It is very true, that when some diseases of the heart advance to a certain degree, they are hopeless; but it is equally true, that if discovered in the first stage of development, and judiciously treated, they may be as certainly cured as those of any other organ or part of the body. Corvisart referred to organic diseases in which there was degeneration of structure. Dr. Hope, on the contrary, affirms on the grounds of incontestible experience that at the commencement, diseases of the heart are in most cases susceptible of perfect cure, and when this is impossible, that we possess the means of arresting their progress, so that the lives of the patients are very little shortened, and even sometimes not at all.

M. Bouillaud entertains this last opinion, and extensive experience has also convinced me of its accuracy. "The essentially organic diseases, and those immediately mortal," says M. Bouillaud, "are ruptures of the parietes of the heart, the sudden coagulation of the blood which circulates in its cavities, and sometimes syncope. Among these which are essentially, but not immediately mortal, we should range, indurations of the valves with considerable contraction of the orifices to which they are adapted, certain pericardites, and chronic cardites.

"The dangerous diseases, but much less commonly fatal than Corvisart supposed, when properly treated, are acute pericarditis, to which I have added carditis and acute endocarditis, which that illustrious observer had not supposed to exist.

"In fine, hypertrophy without dilatation or very considerable contraction of the cavities of the heart, with severe lesion of the valves, simple hypertrophy of these last, without remarkable obstruction to the course of the blood, adhesions and fibro-cartilaginous patches of the pericardium do not belong to the category of diseases necessarily mortal: I say more; it is this, that they are but accidentally fatal, and that proper hygienic cares, very much retard their progress."

I can verify the correctness of the preceding statements from my own observation in several cases in hospital and private practice, and have invariably remarked, that diseases of the heart are as successfully treated as those of any other organ when discovered in their incipient state.

7. General Considerations on the Treatment of Diseases of the Heart.—To treat the various diseases of the heart successfully, it is necessary to know them. If all practitioners possessed profound knowledge, we should not daily observe the mistakes made in the treatment of cardiac diseases, and see chlorotic patients affected with disease of the heart, treated with tonics and chalybeates, or others similarly affected, but supposed to labour under asthma, treated with antispasmodics.

The method of treatment must differ according to the nature of the disease, whether acute or chronic. But the treatment is based on the same principles as in similar diseases of other organs. But these principles must be more or less modified according to the tissue and function of each particular organ; thus, a hypertrophy of the heart cannot be combated in the same manner as a hypertrophy of the womb, the breast, or the tonsils.

The treatment of the violently acute inflammations of the heart (pericarditis, carditis, and endocarditis) require the most copious depletion frequently repeated. It is also to be recollected, that repose of the affected organ, so essential in all inflammations, cannot be obtained in those of the heart; and this want must be supplied, by increasing the energy of the above method of treatment. Venesection is the best means of arresting the action of the heart.

although it cannot be urged to such an extent, without destroying life, as to cause absolute repose of the organ. M. Bouilland is convinced that after free and repeated general and local depletion, digitalis is the best remedy; while others prefer nauseating doses, or full doses of tartarized antimony. He also cautions practitioners against timidity, and shows that many lives are sacrificed, and many chronic diseases of the heart, lungs, and other organs, allowed to supervene, when the most active antiphlogistic treatment is not rigorously pursued. He judiciously remarks, that if it is important to prevent the formation of accidental productions, such as adhesions, fibro-cartilaginous patches, different vegetations, &c., when inflammation attacks the principal organs in general, it is most especially essential, when the disease attacks the heart and its internal fibro-serous tissue. Such accidental productions, developed in the pleura or the pericardium, are not the cause of any immediate injury to health; but when seated in the valves of the heart, and opposing a great and constant obstacle to the circulation of the blood, they become the foundation of certain and inevitable death.

It is by this mechanism, if I may employ the term, that so many unfortunates are destroyed, who have laboured under a supposed pleurisy, pneumonia, or bronchitis, but in reality under an unknown endocarditis, the results of which are thickening, and induration of the valves, which can no longer perform their functions; while at the same time the orifices of the heart become so contracted, as not to permit the passage but of a very small column of blood. These morbid changes would not be dangerous in other organs less important to life, but it is evident that the principle already advanced as to the necessity of modifying the treatment according to tissue and the importance of an organ in the economy, is incontrovertible.

The sad certainty of the incurability of certain organic diseases of the heart, and of death which some of them induce, is a powerful motive to combat them in the commencement, and to strangle those acute diseases to which they so frequently succeed.

The treatment of each of this class of diseases will be given under its respective head, and I shall enumerate the particular cases in which digitalis, "the opium" of the heart, tartarized antimony, and starving plan of Valsalva and Albertini are useful.

8. *Remarks on the Complications of Diseases of the Heart with each other, and with those of other Organs.*—It very rarely happens that we meet with diseases of the heart in a simple or isolated state. Acute or chronic inflammation of the external membrane (pericardium) is very often complicated with that of the internal envelope; but the reverse seldom happens. This fact was recognised only within the last three years by M. Bouilland. It is easily explained when we remember that both membranes are sero-fibrous, and that their proximity is so great in certain points that they

touch each other on their external surface at the interstices of the fleshy fasciculi of the auricles, and regions of the auriculo-ventricular openings. The cellular and muscular tissue of the heart often participate more or less with inflammation of the double fibro-serous envelope of the organ.

Inflammation of the external and internal membranes of the heart, is complicated in a very great number of cases with inflammation of the pleura and lungs; or with that of the sero-fibrous tissue of the articulations (acute articular rheumatism.) M. Bouillaud has observed these complications in half of the cases he treated during the years 1833-34. He has also noticed an anormal excitation of the heart in continued fevers, which did not amount to inflammation properly so called, but greatly retarded recovery.

The purely nervous affections of the heart, and especially palpitations, are generally complicated with disorders of the same class in other organs, such as the stomach, intestines, respiratory organs, those of vision, audition, olfaction, and palpation, and even of the brain itself. Another class of palpitations succeed anemia, from loss of blood by hæmorrhage, and also chlorosis. In the last disease there is the *bruit de diable* or musical whistle of the carotid arteries, and subelavians.

The complications of inflammations of the heart, pericardium, and endocardium, with inflammations of the aorta and principal vessels, are so common as to be known to every observant practitioner, and will, with many other complications, be described in the special history of each part.

M. Bouillaud has given the history of twenty-five cases of inflammations of the heart, complicated with pleuritis and pneumonia, and some of them with both—a common occurrence.

APPLICATION OF PERCUSSION AND AUSCULTATION TO DISEASES OF THE HEART.

Pathology, Semiology, Etiology, Diagnosis, Prognosis, and Treatment of Pericarditis.

PERICARDITIS ACUTUS ET CHRONICUS.

Pericarditis was not known to our predecessors until the practice of making autopsic examinations became general, and its diagnosis may be considered as an acquirement of this age. That accurate observer, Laennec himself, declares that he never could recognise the signs of this disease during life, and if he sometimes supposed it to exist, it was more by conjecturing its presence, than concluding from its determined characters. M. Louis has studied the subject more recently, and unveiled many of its mysteries.

Nevertheless, the signs mentioned by that accurate observer, as

characteristic of pericarditis, are far from constantly accompanying this disease.

More certain signs have been lately remarked by Bouillaud in France, and Latham, Stokes, and Hope, in England. M. Raciborski asserts that M. Bouillaud had recognised pericarditis by percussion and auscultation before he knew the observations of the English physicians, and there is no doubt that this was the fact. Before we can recognise the anatomical characters of pericarditis, we must examine the changes in the inflamed membrane, and those of the fluid which it secretes in a normal state.

The pericardium presents a greater or less degree of capillary injection. In some cases the redness is scarcely perceptible or none, and in these death takes place with great rapidity. There is no doubt in such cases, that the redness and injection existed during life; but there was not time for the blood to be located in the inflamed tissue, in the same manner as we observe redness of the cheeks, and of the conjunctiva entirely dissipated a few instants after death. It is also to be mentioned that when the redness and injection exist, they also occupy the cellular tissue subjacent to the serous membrane, as well as this membrane itself.

The redness does not invariably arise from injection, but sometimes from effusion or infiltration of a certain quantity of blood under the serous membrane or into its tissue. Then the redness appears in the form of spots or patches, of greater or less extent. The membrane is here imbibed with blood. This is the case in hæmorrhagic pericarditis in which the parietes of the pericardium offer a real sanguineous imbibition.

The thickness, transparence, and consistence of the pericardium present, in general, no appreciable change. In some it appears a little thicker and less transparent than in health. When the effusion is very slight, the pericardium is less polished and less soft to the touch than in the normal state, and sometimes it is altogether dry, glossy, and as if gluey to the touch.

The pericardium is easily detached from the heart, and after its separation, we find an injection and redness more or less marked, and sometimes a sanguineous infiltration in the subjacent cellular tissue.

The pericardium is then more or less distended, according to the quantity of effused fluid, or matter.

The normal secreted fluid of the pericardium is modified in its quantity and quality by pericarditis. This enables us to distinguish pericarditis from hydropericardium, whether active or passive; for in the latter disease, the quality of the fluid is the same as the normal serosity or secretion. The pericarditic fluid, on the other hand, coagulates like blood, and divides into two parts, the one a fluid, more or less turbid and flocculent; the other, a concrete fibrous matter, which is commonly designated pseudo-membrane, or false membrane, plastic, coagulable, and organizable lymph. The thin

part may be serum or blood, and when the latter, authors use the term, hæmorrhagic pericarditis.

In some cases, the concrete part or false membranes float in the serous or sero-purulent portion, and the quantity of the effusion may be four pints, (Louis,) or two pints and a-half of sero-purulent fluid, (Corvisart.) At other times, the effusion, in place of consisting of two portions is a homogeneous liquid, inodorous, white, creamy, greyish, or greenish; in a word, it is true pus.

The quantity of the pseudo-membranous matter is very variable. It may amount to some drachms or ounces. It may be disposed in confused masses, or unite the layers of the pericardium, and the cardiac one to the heart. The false membrane may be less than a line, or several lines in thickness. The disposition and configuration of the free surface of the false membrane in pericarditis is unequal, areolated, and was compared to the internal surface of the second stomach of a calf (*bonnet du veau*) by Corvisart. When the heart is entirely enveloped in rugous, irregular false membrane, it resembles a pine-apple. The reticulated disposition resembles a honey-comb; in other cases Dr. Hope has compared it to the appearances of the two surfaces separated from each other, being previously smeared with butter. The roughness and villosity of the surface of the pericardium has been compared to the tongue of a cat. M. Bouillaud seems disposed to ascribe the disposition of the surface of the false membrane to the continual movements of the heart.

The matter of the false membrane is of the consistence of coagulable lymph, or the buffy coat of the blood, and its colour is a paler bluish white, or grey, and it forms adhesions almost instantaneously in moderate pericarditis, and unites the layers of the pericardium like the lips of a recent wound. M. Bouillaud is convinced that the inflammatory coat of the blood, and the lymph effused by inflamed serous membranes, present the closest resemblance. "The adhesion of the inflammatory coat of the blood with the surface of the clot may be compared to the adhesion of the external surface of the false membrane with the free surface of the inflamed serous membrane, and the retraction of the crust produces an inversion of the borders of the clot, as the false membrane on the surface of a wound which suppurates, draws from the circumference towards the centre."

In chronic pericarditis, the pericardium is thickened and hypertrophied like all other tissues that are inflamed, and the subjacent capillary as well as the nutritive vessels become enlarged. There may be serosity or pus in the pericardium, and the plastic matter is sometimes replaced by general or partial cellular adhesions, or by bands which unite the layers of the pericardium to each other, or to the heart. The false membranes are cellulo-fibrous, or fibrous, and are opaline, whitish, or milky, and may cover the heart and large vessels, especially the aorta near the pericardium. The false

membranes may also become fibro-cartilaginous, or osseous like the gelatiniform matter secreted by the inflamed periosteum. There are some cases in which the heart becomes covered with an osseous shell, and the pericardium may undergo all these morbid changes. This transformation is somewhat similar to the normal evolution in certain tissues as of the periosteum to cartilage and bone.

But in place of adhesions and false membranes, the pericardium sometimes presents granulations and small vegetations of different forms. The effused fluid or the exudation of very thick, false membranes, sometimes makes a compression on the heart which causes its atrophy. M. Bouillaud has recorded cases, in which false membranes so compressed the heart as to reduce it to half its size, and in which it was found atrophied, similar to a lung that had been a long time compressed by a pleuritic effusion. He also states that the internal membrane of the heart in the majority of the cases of pericarditis, was very much altered. It was sometimes red and thickened, the redness occupied the valves, which were swollen, evidently thickened, and fungous, and especially on their free border. At the same time clots of blood were observed, more or less abundant, some of which were evidently manifest before death.

In chronic pericarditis, there is nothing more common than to find in the internal sero-fibrous tissue of the heart, the same alterations as in the external sero-fibrous tissue.

The muscular tissue of the heart, may, like the serous, fibrous, and cellular tissue of the same organ, become thickened and hypertrophied, and it must not be forgotten that it may be indurated, scirrhus, and cartilagified. It may, however, become softened and more or less friable, and changed in colour. Thus authors describe red and brown, yellow and white, ramollissement. Laennec observed that in chronic pericarditis, the muscular tissue of the heart sometimes became decoloured and whitish, as if it had been macerated for some days in water. This was caused, in the opinion of Bouillaud, in those cases, in which there was an effusion of pure serum alone, as in hydropericardium, properly so called. In such cases, the surface of the heart is continually bathed and macerated in the effused fluid, it becomes whitish and acquires a pale or lactescent tint, which rarely extends to the muscular substance of the heart, it is arrested in the first layers, and sometimes, only occupies the serous and subjacent cellular tissue.

Symptoms and diagnosis of Pericarditis in its period of congestion, secretion, or suppuration.—The local signs of pericarditis are of two orders; the first belongs to the physiological signs, properly so called, as those furnished by the sensibility and movement; the second comprise the physical signs.

1. A pain, more or less acute, exists under the left nipple and towards the inferior extremity of the sternum, occupying a part or the whole of the precordial region, and radiating towards the left axilla and arm, and extending towards the diaphragmatic, epigas-

tric, and hypogastric regions, and especially towards the left side. The pain may be pungent, lancinating, tearing, extremely violent, and, like that of pleurisy, is increased by percussion, by the respiratory movements and by cough; it prevents the patient from elevating the left side, or from lying upon it, and some patients place the hand upon the painful region during inspiration, or coughing.

There are, however, cases of pericarditis in which the pain is dull, or so slight that no complaint is made of it: percussion and pressure made from above, downwards towards the stomach, elicits this pain. Some patients do not complain of any pain. In cases in which the pericarditis is complicated with very acute pleuritis, or severe acute articular rheumatism, the pain of pericarditis is often masked and obscured by that of either of the diseases just mentioned.

According to the observations of Bouillaud, the pain is very slight, or absent, in simple pericarditis; which accords with the conclusion of Laennec, contrary to that of Corvisart, that of all pericardites, the most latent was that in which we cannot recognise any complication. Rheumatismal pericarditis is often indolent and attended with little pain, if pleurisy does not exist at the same time. In this last complication there is pain, more especially when the left pleura is affected; and this is never so severe and pungent as when the pleurisy is situated in the left portion of the diaphragmatic pleura. The pain in pericarditis, like that of all tissues normally insensible, is caused by the reaction of inflammation on the visceral nerves; and in this particular disease on the phrenic nerves, whose branches extend to the pericardium, and also on the intercostal nerves.

2. The pulsations of the heart are stronger and more frequent than normal, sometimes regular, irregular, unequal, and intermittent, and constituting palpitations more or less violent. These are distinguishable on placing the hand over the heart, and sometimes on inspection, while in other cases the hand does not detect them. The last phenomenon occurs when there is effusion into the pericardium; in which case the pulsations of the heart are more feeble than natural.

M. Bouillaud describes another phenomenon not noticed by any observer before him, that the second movement of the heart is made in two periods, and with a kind of crackling (*craquement*.)

Lastly, M. Louis has noticed the projection of the precordial region in certain cases; an observation subsequently attested by Bonillaud on several patients.

Diagnosis.—When the pericardium does not contain fluid, the dull sound of the heart elicited by percussion, is nearly normal; but when the heart is increased in size by congestion, its sound takes a rapid extent, and the valvular bruits are heard *distinctly* and *superficially*.

This augmentation of volume may also supervene on endocarditis, (inflammation of the lining membrane of the heart,) and it is sometimes difficult to recognise this last disease from dry pericarditis with the same complication. It is fortunate that the mistake cannot be followed by dangerous consequences, as the two morbid states require the same treatment.

If the pericardium contains serosity, the dull sound will be proportional to the quantity of the fluid, and its rapid appearance enables us to distinguish it from the dull sound of hypertrophy of the heart.

When after having examined the precordial region during dorsal decubitus, or when the body is in the recumbent position, we can determine the superior and inferior level of the fluid, and if afterwards we place the patient in the sitting position, the levels are more or less depressed under the preceding points, which shows that the dulness does not altogether depend on simple augmentation of the size of the heart, caused by congestion. The position of the heart and of the fluid in the pericardium will vary, when the patient is placed on either side.

Auscultation affords many positive signs diagnostic of pericarditis.

When the pericardium is the seat of more or less effusion, besides the dull sound given by percussion, auscultation perceives the bruits of the heart *dull* and *distant*, and the impulsion is not audible. These characters are sometimes combined with the bruit de soufflet, resulting from the compression of the heart and its orifices by the effusion in the pericardium.

If the pericardium, instead of containing fluid, is covered with false membranes of greater or less thickness, the heart rubbing, during each systole, against the inequalities of these, will produce different bruits, *frôlement*, (grazing,) *frottement*, (friction,) *souffle*, (bellows sound,) *scie*, (saw,) *rape*, (rasp,) and *cure neuf*, (new leather,) all produced by the same mechanism, and presenting but different shades of friction.

The only one of these bruits characteristic of pericarditis is the new leather sound, noticed by Collin, the clinical assistant of Laennec, as all the rest are heard in different diseases of the heart. This sound, however, does not always exist in pericarditis, and is absent in many cases of the disease. (Bouilland.) Nevertheless, when these bruits are superficial, and appear to pass immediately under the ear, and chiefly during the approach of the apex of the heart to the parietes of the chest, we presume that they are seated in the pericardium, and that there is pericarditis. Another distinctive character of the bruits is, that those of the valves and orifices are generally heard to a considerable extent, while those of the pericardium are only audible in the precordial region, while the valvular bruits are heard even under the left clavicle.

When pericarditis is acute, and the bruits instead of being *super-*

ficial are *profound or deep*, and heard best at the orifices of the heart, it is probable that they depend on endocarditis, which gives rise to different diseases of the valves and orifices of the heart, and also explains the formation of the anormal bruits.

Lastly, there are other circumstances which assist in forming the diagnosis. Thus, when having heard the souffle in the dorsal decubitus, or in the sitting posture, and when it disappears as soon as the patient lies on the right side, there will be strong reasons to believe that there are false membranes in the pericardium; that the bruit de soufflet, which depends on the friction of the membranes, when the apex of the heart approaches the parietes of the chest, has disappeared, because the latter was more distant from it in the new position.

M. Bouillaud has found a true bruit de soufflet in pericarditis, a sign also noticed by Hope, Stokes, and Latham, and without claiming any priority, he observed it, while he was unacquainted with their accounts of it. He also cautions the practitioner against confounding the bruit de soufflet, properly so called, with the bruit de frottement or de froissement, which characterises certain species of pericarditis; the last is more diffuse and more superficial, is accompanied by a movement of grating, (grattement,) scraping, (raclement,) or rasping, (râpement,) which are not recognised in the true bruit de soufflet. Such is the difference between these bruits, and both may be present at the same time in the same patient.

The bruit de frottement pericarditique is analogous to the bruit of friction in pleurisy, was termed murmur ascensionis et descensionis by Laennec, and on which M. Reynaud has offered some new details. He says, it is isochronous with the beatings of the heart, but is stronger during the systole than the diastole, and in certain cases exactly resembles the crackling of taffeta, bank-note paper, or parchment. M. Bouillaud has heard it during the ventricular diastole only. The reciprocal friction of the opposite layers of the pericardium when covered with false membranes, is evidently the cause of the bruits of taffeta, parchment, and of the diffused and superficial grating or rasping just mentioned. Such is also the cause of the new leather sound, but the false membranes are thicker and more resistant than in the former case. Dr. Hope ascribes the bruit de soufflet to the increase of the force of the cardiac pulsations, while M. Bouillaud attributes it to endocarditis, either primary, or secondary to pericarditis, and that there are cases in which it depends on the formation of clots in the cavities of the heart; productions so common in endocarditis, and which necessarily offer an obstacle to the course of the blood through the orifices of the heart. This cause, therefore, may be combined with the preceding one.

Symptoms. Pyrexia more or less violent, pulse frequent, full, strong, and regular, skin hot and sudoral; sometimes the pulse is small, unequal, irregular, and very rapid, and the skin in place of

being moist, is very dry and hot, and in other cases it is cold on the extremities, and covered with a cold perspiration. There is also dyspnœa, and an insupportable sense of oppression, the patient being restless, constantly changing his position, (jactitation,) and calling for the admission of fresh air; the countenance is pale, sharpened, and marked with the greatest anxiety, and an expression of undefinable terror. Sometimes there are spasmodic or convulsive attacks, and even the sardonic grin. When there is dyspnœa and the nostrils are dilated during inspiration and expiration, and these functions become small and frequent as in pleurisy; respiration is interrupted by sighs, sobs, and hiccups; there is in some cases a slight and momentary or a severe delirium, complete insomnolence, and sometimes general convulsions. The anxiety and agony are sometimes so great and insupportable, that the sufferers implore death to end their miseries.

When the disease continues for a few days, the countenance becomes deadly pale, livid, or violaceous; the extremities are infiltrated, and there are all the appearances of chronic diseases of the heart. There are some cases of intense pericarditis in which the symptoms and reaction scarcely exist; and this occurs when the patient's agony is increased to the degree, that he experiences but a slight sense of oppression.

This great and singular difference is caused by the complication of violent pleurisy with pericarditis, and particularly of an extensive diaphragmatic pleurisy. (Bouillaud.)

The dyspnœic phenomena almost extending to suffocation, and the lipothymic phenomena closely approaching to syncope, generally coincide with a considerable effusion into the pleura or pericardium, and with the formation of polypous concretions in the cavities of the heart.

The extension of the inflammation of the fleshy fibres of the heart, and the inflammatory swelling of the valves, which are much more frequent complications of pericarditis than were supposed to exist until a late period, very much influence the re-actional phenomena, and particularly the disturbance in the circulation and respiration.

The violent symptoms may be traced to the respiratory nerves, and also belong to pleuritis or pleuro-pneumonia. In some cases there are vomitings, more or less frequent.

None of the symptoms now enumerated, when taken isolatedly, is diagnostic of pericarditis, and all of them must be taken together, as well as the signs furnished by inspection, the touch, percussion, and auscultation, to resolve the problem.

When most of the symptoms are absent, but there is fever, dullness of sound in the precordial region, with or without arching of this part, pericarditis is present. But when the disease is very slight, and scarcely any sign is afforded by percussion or auscultation, it is difficult to form a correct diagnosis.

It is also difficult to diagnosticate in pleurisy of the left side, near the region of the heart, but fortunately the treatment is similar in both cases.

In some cases, congestion and suppuration extend beyond their ordinary limits, and then some say that pericarditis has passed into the chronic state. But the chronic form of this disease is not always consecutive on the acute species. The term chronic pericarditis, is employed when the disease has advanced, slowly and obscurely, from the first, with little febrile action, and for this reason it is sometimes designated latent.

When the signs already enumerated, with those of effusion, are conjoined, with more or less pain in the precordial region, slight fever, increased towards evening, or after the ingestion of certain aliments, an oppression more or less intense, a degree of swelling of the countenance, with or without a violaceous tint, a general or partial infiltration, and œdema of the ankles, augmented when the patient sits up, we have certain signs of chronic pericarditis.

Signs of adhesions and other accidental productions consecutive on Pericarditis.—M. Bouillaud informs us, that adhesions, milky spots and patches on the pericardium, caused by inflammation of that membrane, do not necessarily derange the action of the heart, and are met with in persons who enjoy the best health. This able pathologist had a patient affected with acute endo-pericarditis, with false membranes, which gave rise to a bruit de râpe, (rasp sound,) whose health was perfectly established. He does not as yet know any sign pathognomonic of the existence of false membranes.

When the patches and granulations developed on the surface of the pericardium, form projections of greater or less magnitude, and are hard, unequal, cartilaginous, calcareous, and even osseous, they give rise to different bruits of rude friction, sawing, rasping, &c. These productions are completely harmless, or, at least, do not considerably derange the function of circulation. But when they are situated within the cavity of the heart, as in chronic endocarditis, they produce great derangement of the function of the heart, and also many diseases, as will appear in the account of endocarditis.

Causes of Pericarditis.—It is most important to know, that among the many exciting causes of pericarditis, the most powerful, and the most frequent, undoubtedly is the sudden application of cold, after the body has been very much heated, as after violent exercise. Among the causes are external violence, traumatic agents, blows, falls, and the introduction of foreign bodies into the pericardium. According to the numerous observations of M. Bouillaud, pericarditis was, in the majority of instances, as well as all pectoral diseases, attributed to the sudden exposure to cold after a copious transpiration, or after severe exercise or fatigue. We are, therefore, not to be surprised, that pericarditis is usually complicated with pleurisy and peripneumonia, and also with acute articular rheumatism.

In some cases of rheumatism, a fever succeeds the acute inflammatory action, which has been termed essential by some writers, and which depends in a great number of instances on pericarditis, endocarditis, or endo-pericarditis. A latent pleurisy likewise often causes essential fever after rheumatism, but this is of more rare occurrence than the diseases of the heart just mentioned.

Dr. Hope observes, in his work on diseases of the heart, that in acute rheumatism there is not a more common or formidable danger than inflammation of the heart and its membranes, when neglected, and that it often constitutes a most obscure and insidious disease, the patient almost always dies of the first attack, or survives a short time, a martyr to an incurable organic affection of the heart.

According to M. Bouillaud, pericarditis is not so generally caused by metastasis or transportation of rheumatism from the joints to the covering of the heart, as is often supposed; for he has observed that it did not occur until several days after the commencement of articular inflammation. In many cases the pericarditis succeeds the rheumatism, but it may occur during the existence of this disease, as it does during pleurisy and pleuro-pneumonia, from the tendency to extension and diffusion which characterise rheumatismal inflammation, under the influence of some accidental cause.

It is scarcely necessary to mention the analogy between the tissues of the pericardium, endocardium, and sero-fibrous structures of joints, and of serous membrane. In further illustration of this point, I may allude to the instructive paper, by the late Dr. M^r Dowel, of Dublin, on peritonitis caused by metastasis of articular rheumatism.

The predisposing causes of pericarditis will occupy us only for a few moments. We observe this disease in subjects of all ages, and both sexes: it occurs in all climates and in different seasons; nevertheless, the patients from ten to thirty years of age, are more exposed to it than those of other ages, and it is more common in the periods of the year in which there are great vicissitudes from hot to cold, than in others, &c. It is also determined by M. Bouillaud, that certain individuals are predisposed to diseases of the heart, and that this predisposition is hereditary.

Prognosis, mortality, progress, and duration of Pericarditis, and its complications.—Pericarditis is, as already stated, a most dangerous disease when overlooked, mistaken, or mismanaged; and we often find traces of it as the various degenerescences, in the bodies of persons destroyed by various other acute or chronic diseases. Pericarditis is the most frequent inflammation after pleuritis. Bouillaud contends that the generality of pericardites are curable, and the mortal cases are only exceptional, and his extraordinary success depended on copious depletions. The most violent cases of simple and complicated pericarditis, even when combined with intense endocarditis, pleurisy, or pleuro-pneumonia yielded to this remedy.

Many distinguished authors, as Lancisi, Senae, Meckel, Morgagni, &c. have described adhesion of the pericardium to the heart, and the morbid results produced by it, such as palpitations, &c. It would also appear, at first sight, that an adhesion ought to impede the function of the diaphragm, and that the movements of this muscle ought to derange the systole and diastole of the heart. But M. Bouillaud has described such adhesions between the pericardium and heart, which did not cause palpitations or any impediment to circulation and respiration. He has not found such adhesions so common as those of the pleura, and this he accounts for, by referring it to the strong and constant movements which incessantly agitate the heart. But he also admits that the fibrous, cartilaginous, and osseous depositions on the pericardium may, in some measure, impede the motions of the heart.

Chronic pericarditis, with purulent, sero-purulent, sero-sanguinolent and sero-pseudo-membranous depositions, is a formidable disease, and one which in general defies therapeutic agents. We should therefore endeavour to discover the acute form of the disease, and employ vigorous means for its subdual, before it assumes the formidable character now described.

The progress and duration of pericarditis will vary according to a great number of circumstances, as the cause which produced the disease, the age, temperament, state of simplicity, or of complication, and treatment.

Some pericardites progress with such rapidity that they destroy life in a few hours. M. Andral reports a case in which death happened in twenty-seven hours. The cases so rapidly mortal are complicated with violent pleurisy, acute endocarditis, &c.

When pericarditis is chronic it may persist for several months, while morbid changes which succeed it may continue for an indefinite period, without disturbing the health in a remarkable manner.

In most cases, acute pericarditis, when vigorously treated, terminates successfully from the seventh to the fourteenth day; but there are some exceptions.

In fine, pericarditis is often complicated with either acute or chronic inflammation of the internal membrane of the heart, of the pleura, of the peritoneum, and of the synovial membranes of the articulations. M. Bouillaud describes a case of the disease with which there was inflammation and suppuration of the spleen, and diaphragmatic plenrisy of the left side. Corvisart had previously observed that acute pericarditis never occurred without complication.

Treatment.—Like all other inflammations, acute pericarditis requires general and local bleeding, repose, low diet, refrigerants, purgation, and counter-irritation. The urgency and danger of the disease demand free sanguine emissions from a large orifice in the vein, repeated several times in the space of three, four, or five days. It need scarcely be observed, that the depletions, both general and

topical, ought to be proportioned to the intensity of the disease, to the age, strength, temperament, to the sex of the patient, to the complications, &c. As a general rule, in a patient in the prime of life, affected with intense pericarditis, three or four bleedings from the arm, always from a free orifice in the vein, carried to the extent of decidedly depressing the action of the heart, or to the approach of faintness, will, during the first three or four days, seconded by the application of from twenty to thirty leeches, or cupping reiterated two or three times, suffice to cure the disease.

"Few pericardites," says M. Bouillaud, "will resist this plan of treatment, if attacked in their commencement." But when the disease persists after the preceding plan of treatment, different revulsives, such as the application of warm turpentine, blisters, antimonial ointment, croton oil, moxas, setons, and mercurial frictions, are to be employed.

During the use of the preceding remedies, the diet should be the lowest possible, and warm baths may be employed, as they favour the action of the remedial agents.

When the pulsations of the heart become tumultuous, irregular, and pericarditis is protracted, and induces hypertrophy of the heart, hydriodate of potass, combined with digitalis, is a most valuable remedy. But when there is an abundant effusion, or false membranes, causing by their compression an atrophy of the heart, it will not be prudent to diminish its action further by digitalis, colchicum, &c.

In hydropericardium, or dropsy of the pericardium, in addition to the means already mentioned, the internal and external use of hydriodate of potass, or the proto-ioduret of mercury, will perhaps afford relief; but should the disease continue to advance, paracentesis, or tapping, is indicated, an operation seldom performed, from the great difficulty, or almost impossibility of determining the existence of the fluid in the pericardium.

Pathology, Semeiology, Etiology, Diagnosis, Prognosis, and Treatment of Endocarditis.

ENDOCARDITIS ACUTUS ET CHRONICUS.

The indefatigable M. Bouillaud is entitled to the merit of having first described inflammation of the lining membrane of the heart, in the same accurate manner as he has done that of the external membrane of the same organ, (pericardium,) as already stated. He also included inflammation of the fibrous tissue of the valves.

Endocarditis was not fully described or duly estimated until 1824, when M. Bouillaud recorded its history in an essay on Inflammation of the Internal Membrane of the Heart and Great Ves-

sels. Baillie, Burns, and Laennec had previously described inflammation of the internal membrane of the heart in a few isolated cases, but none of them expatiated upon the subject. Corvisart was not aware of the disease. Bouillaud subsequently described inflammation of the internal coat of the aorta, and he is solely entitled to the great merit of elucidating endocarditis as an exclusive inflammation. He has evinced the most laborious and careful observations on diseases of the heart, pericardium, and the large vessels adjoining the centre of the circulation; and his researches enabled him to prove that all the morbid results of pericarditis, which are enumerated in the preceding article, were also to be found in the internal membrane of the heart. He has detailed numerous autopsies in verification of this conclusion. With a pathological zeal which reflects the greatest credit upon him, he examined all the bodies of patients who had died in the hospital La Charité from 1828 to 1832, and accumulated a series of facts which render him eminent as a pathologist, as they fill up great lacunæ in pathology. He tells us that he was not influenced by any preconceived theory; but, on the contrary, that this theory was established after a rigid estimation of positive facts. He candidly acknowledges the observations of English physicians. He refers to Dr. Baillie's *Morbid Anatomy*, a work arranged under the auspices of the author's illustrious uncles, William and John Hunter, in which inflammation of the venous valves is described, and these covered with plastic or coagulating lymph. Mr. Allan Burns had also described inflammation of the cavities of the heart, (work on *Diseases of the Heart*, 1809). He found on the internal surface of the right auricle a layer of flocculent lymph, and the left auricle partly ossified and covered internally by a layer of coagulating lymph.

Mr. Kreisig also described true endocarditis under the term polypous carditis; but polypi of the heart are observed in cases in which there is no endocarditis. Laennec likewise commented upon the disease under consideration; and Dr. Hope has also an instructive chapter on inflammation of the interior of the heart and arteries. M. Bouillaud remarks that this author has not propounded anything which he himself had not observed; but upon this statement I cannot offer a positive opinion. It is possible, from the original researches of Dr. Hope, that he might not be aware of those of our celebrated Gallie contemporary; but it is equally certain that he struck out a new path in pathology for himself, and that he might have arrived at this conclusion without any knowledge of M. Bouillaud's observations.

It is easy to explain this fact, when we consider the difficulties that exist, even now, as regards the reciprocal transmission of British and French works into England and France.

M. Bouillaud describes endocarditis in the same manner as peri-

carditis; and I shall condense or epitomise his observations and indite his conclusions.

Observations on Endocarditis, during the period of sanguine congestion, of suppuration, and of incipient ulceration.—M. Bouillaud gives the histories of thirteen cases which are analogous to his numerous reports on pericarditis. These are most instructive and valuable, and perfectly conclusive.*

The second category is equally well attested by eleven cases or observations. It is thus intitled:—

Observations on Endocarditis, during the period of hypertrophic thickening of the inflamed tissues, and of the developement of adhesions, cellulo-fibrous, membranous, or fibrous patches, or vegetations, and granulations.—The first four cases present us with examples of adhesions of the valves of the heart to the internal surface of this organ, lesions which have not been hitherto described by authors of works on diseases of the heart, and which establish a new relation between endocarditis and the other inflammations of serous membranes. The next three cases are examples of false membranes of greater or less extent, which are organised on the surfaces of the cavities of the heart, which M. Bouillaud terms spots of endocarditis, because they exactly resemble those on the pericardium already described. Finally, the four last cases are relative to granulations or vegetations of the valves of the heart. The whole of these cases are replete with instruction, but their histories would occupy too much space, and they ought to be perused in the original work, or the translations of it in the different languages, by every medical practitioner. For my own part, I cannot but admire the laborious observations, and the valuable conclusions of M. Bouillaud, which abound with sound practical information.

The third category is equally novel and important as the preceding ones, and this I shall but briefly notice, for the reasons already stated.

Observations on Endocarditis, followed by the fibro-cartilaginous, cartilaginous, osseous, or calcareous thickening and induration of the valves of the heart, with or without contractions of the orifices of this organ.—Twenty-three cases illustrate this section. In the first six are reports of induration of the different valves of the heart without contraction, or with very slight contraction of the orifices to which they are adapted. The next fifteen, out of seventeen, present examples of induration of the valves, with considerable contraction of the orifices. Three of these cases are relative to induration of the mitral valve, with contraction of the left auriculo-ventricular orifice. Two cases exemplify induration of the aortic valves, with contraction of the aortic orifice. Three are relative to induration of the trienspid valve, with contraction of the right

* Op. cit. 1836.

auriculo-ventricular orifice. The next four are histories of cases of induration of the valves of the pulmonary artery, with contraction of the corresponding orifice. The last three present examples of induration of several valves at the same time, with different contractions; in two of these cases, the aortic and mitral valves are indurated, and the aortic and left auriculo-ventricular orifices are contracted, and in another case, the same lesions exist, with induration of the tricuspid valve, with contraction of the right auriculo-ventricular orifice. Most of the subjects of these observations were young; some were adults, and others had arrived at old age. There was no trace of inflammation in the ossifications of the valves of old persons. It is worthy of remark, that cartilaginous, osseous, and calcareous induration of the valves were observed in young subjects, and even in infants.

In fine, some authors have ascribed contraction of the pulmonary artery to congenital conformation; but M. Bouillaud contends that induration of the valves is the result or consequence of endocarditis, which has passed into the chronic state.

Exposition and appreciation of the anatomical characters of Endocarditis.—The anatomical characters of this inflammation are precisely the same as those of pericarditis, but also offer peculiar characters, on account of the structure of the endocardium, or lining membrane of the heart, and others from the presence of the blood incessantly circulating through the cavities of the organ which the membrane covers. It is most important to know the anatomical characters peculiar to each of the stages of endocarditis, if we wish to understand the principal symptoms in a clear and precise manner. It is necessary to study in succession the alterations in the fibro-serous tissue itself, the products caused by inflammation, and the state of the blood contained in the cavities of the heart.

The redness of the internal membrane or the endocardium may be slight and evanescent soon after death, as in the pericardium, or it may be intense, or brownish, or violaceous. It may be local or general, and may be found in any part of the living membrane of the heart. It is often confined to the valves alone. The redness is more intense in the right than in the left cavities, on account of the blood not being of so vermilion a colour in the first as in the second. However this may be, the redness is not caused by capillary injection, but by a kind of sanguine tinting of the internal membrane of the heart. It does not ordinarily penetrate under this tissue, and is removed by ablution, but does not resist maceration when sufficiently prolonged.

M. Bouillaud is convinced that redness of the endocardium and large vessels is often caused by cadaveric imbibition purely, in the bodies of those who have died of putrid or typhous fevers, in which the fluidity of the blood is greater than in the normal state, and most suited to be imbibed by the internal membrane of the

vascular system. His opinion is contrary to that of M. C. Broussais, that the redness of inflammation and that of imbibition cannot be distinguished except by the usual appearances of the results of inflammation on the part of the endocardium on which they appear. These are, 1. Thickening and softening of the parts on which the redness occupies. 2. The presence of a certain quantity of pus, of pseudo-membranous matter, of adherent, plastic lymph, or fibro-albuminous matter. 3. The coincidence of the redness in the vessels, (arteritis, phlebitis,) which positively proves the existence of inflammation before the deaths of the subjects.

It appears, from numerous cases, that acute endocarditis terminates as already stated, and rarely in gangrene—a disease seldom found in sero-fibrous tissues—and that it commonly causes the coagulation of a greater or less quantity of blood in the cavities of the heart. In this manner it resembles arteritis and phlebitis. But the concretions consecutive on acute endocarditis are totally dissimilar to those that are sometimes found in the heart after death, as they are white, elastic, glutinous, adherent to the parietes of the heart, and entwined round the valvular tendons and fleshy columns. These are semi-organized, are analagous to the buffy coat of the blood, and some of them contain red lines which are really nothing else than the rudiments of vessels.

These concretions vary in size and configuration, and are generally prolonged into the large vessels. In similar circumstances they are longer and more abundant in the right than in the left cavities of the heart. They are generally adherent to the free borders of the valves, on which traces of them are found after repeated ablutions. It is very probable that these fibrinous masses may be organised and transformed into vegetations or granulations. When endocarditis does not speedily terminate by resolution, and when it is protracted for fifteen, twenty, or thirty days, or even longer, the inflamed tissues become more or less thickened, and the plastic part of the anormal products, secreted by these tissues, passes from the amorphous state, to that of organization. In such cases we find according to the circumstances of position, of configuration, and of composition of the organisable matter, either vegetations or granulations, cellulo-fibrous adhesions, fibrous or sero-fibrous layers, &c.

Vegetations or granulations are generally situated on the free borders of the valves, and very frequently on the internal surface of the cavities, and especially of the auricles. These vegetations or granulations were termed globous and verrucous by Laennec, and more accurately albuminous and fibrinous by Bouillaud. They may become also corneous and cartilaginous. They vary in size and form, from the size of a millet seed to that of a grain of hemp-seed, or a small pea. They may be distinct or confluent and resemble a cauliflower. They may be round, spherical, elongated,

cylindrical, or flattened, and their surfaces may be smooth, polished, unequal, or rugous.

Vegetations of the valves or of the internal parietes of the heart are very often accompanied by fibro-cartilaginous or calcareous indurations of the valves. When these vegetations are numerous, confluent, and grouped so as to resemble a cauliflower, they prevent the action of the valves, and more or less contract the orifices to which these are adapted, impede the circulation of the blood through the affected side of the heart, and lay the foundations of many diseases of the organ. The pathology of the adhesions induced by endocarditis was not fully described by any author on diseases of the heart except M. Bouillaud. He observes that it is easy to understand that adhesions are much less common in endocarditis than in inflammation of other serous membranes. The current of blood which circulates through the cavities of the heart, and the movements of the valves, are powerful obstacles to the anormal formation under consideration. Hence it follows that adhesions only occur at those points where the obstacles are in the slightest degree. Thus they are most common at those parts of the valves which are most immobile, and on the corresponding parts of the ventricles. These adhesions considerably derange the circulation of the blood by preventing the valves from completely closing the orifices to which they are adapted.

The opposite borders of the valves may adhere to each other, examples of which will be described hereafter.

Again, the whole or a part of one cavity and of different cavities of the heart may be lined by a false or adventitious membrane in a single or in separate layers.

In other cases there may be spots or patches on the endocardium, such as are sometimes formed on the pericardium.—See Pericarditis. In a great number of cases the lining membrane of the heart is thickened by false membranes. It becomes hypertrophied, loses its transparency, its surface becomes less polished, less villous, unequal, and covered with rugosities. The hypertrophic thickening extends to the fibrous and sub-endocardic cellular tissue. M. Bouillaud has frequently observed hypertrophy of the valves and of the tendinous zone where their extremities are inserted. The tricuspid valve is particularly subject to this consecutive hypertrophy, and to a contraction of the auriculo-ventricular aperture.

We have next to consider the third period of endocarditis, in which cartilaginous, calcareous, and osseous indurations occur in different parts of the heart, and of the valves in particular, with or without contractions of the crifices of the heart.

These degenerescences may vary from the size of a lentil to that of a finger nail, or even larger, and the valves may become completely cartilaginous or osseous in their fibrous zone and extremities

or points of the valves, and the structure may be only partially affected, while the other parts may be hypertrophied.

The osseous or calcareous incrustations of the valves form various configurations. They are sometimes arched, circular, elongated similar to stalactites, of a pyramidal or irregular form, or round, the size of a pigeon's or pullet's egg. These calculi, or stones, are rough and unequal on their external surface, and may form on the surface or in the substance of the valves, or may be prolonged into the substance of the heart itself. These growths more or less impede the functions of the valves, and prevent them from closing the orifices to which they are adapted. The effect of this will be, that the fasciculi, or bundles which form the valves, may be perforated, lacerated, thickened, or indurated; and in one case one of the aortic valves was almost entirely detached, and it hung and floated into the cavity of the aorta. In a great number of cases the indurated, ossified, or petrified valves unite, except in the centre, where there is an irregular, oval, or elliptic aperture or transverse bands. These changes are more frequent in the left, or arterial valves, than in the right, or venous.

Contractions of the orifices of the heart, consecutive on the different kinds of valvular indurations and transformations, deserve great consideration and reflection. In order to appreciate them correctly, we should call to mind the normal or natural state of the valves. We shall then find that the contractions are very variable, the extremes being from the size of the extremity of the little finger to that of a goose-quill. Whatever the size of the aperture may be, it is permanently the same, and may be round, oval, or elliptic. In some cases the affected valves are but partially elevated after the passage of the blood from the auricles into the ventricles, or from these into the aorta or pulmonary artery; and in others the valves are absolutely depressed under the same circumstances.

It must be manifest to every one acquainted with anatomy and physiology, that the morbid changes now described in the valves of the heart must be productive of numerous disorders and diseases of the central organ of the circulation of the blood, that bad health must be induced, and that premature and painful diseases must be the consequence. How many deplorable and melancholy examples daily occur, and how many have fallen under my own observation, that might have been prevented or obviated by proper treatment.

Exposition of the symptoms of general and partial Endocarditis.—It is remarkable, that pain is often absent in endocarditis, and the symptoms are a feeling of illness, anxiety, oppression in the precordial region, accompanied by a tendency to syncope, or lipothymia.

The physical signs furnished by inspection, palpation, percussion, and auscultation, deserve great attention, and have not as yet been described by any author, except M. Bouillaud.

When endocarditis is complicated with pericarditis, and has continued for several days, there is sometimes an arching, or projection of the precordial region.

This region is shaken in simple endocarditis by the violence of the pulsations of the heart, which are felt with the hand; and these extend beyond their normal limits. There is also a vibratory purring, more or less marked, in the precordial region, in some cases.

Percussion affords a dull sound in the region of the heart in a surface from four to sixteen square inches, and to distinguish it from that of hydropericardia, it is sufficient to remark, that it corresponds, in endocarditis, with the superficial, visible, and tangible pulsations of the heart; whilst in considerable effusion, the beatings of the heart are deep-seated, remote from the thoracic surface, and scarcely or not at all sensible to the sight or touch, in ordinary dorsal decubitus.

Auscultation enables us to perceive a *bruit de soufflet*, which marks one or both of the normal sounds of the heart. This bruit is stronger in proportion as the pulsations of the heart are more violent and precipitate, and is probably increased by fibrinous concretions, or false membranes, on the valves of the heart; and when these are so great as to impede the action of the valves, the bruit may perhaps be absent. We also hear metallic tinkling isochronous with the systole of the ventricle, when the pulsations of the heart are more violent. In many cases, the beatings of the heart may be appreciated by the sight and touch; and it may be possible hereafter to ascertain precisely the different degrees of augmentation of the force of the contractions of the heart, by means of the sphygmomètre of M. Herrison. The pulse is from 140 to 160; is irregular, unequal, and intermittent, and in some cases is not synchronous with the beatings of the heart. This is easily explained, by recollecting that more or less considerable masses of fibrinous concretions in the cavities of the heart, and inflammatory engorgement of the valves, or defects in the auriculo-ventricular orifices, which impede the flow of blood through the heart, must render its pulsations violent, oppose the projection of a large column of blood into the arterial system, and cause a small, feeble pulse.

When there are abundant fibrinous concretions in the cavities of the heart, the circulation of the venous blood will be impeded, the countenance and the hands acquire a livid or violet colour, and œdema supervenes, or there is serous effusion into the cellular tissue of extremities. The symptoms of coma and apoplexy have occurred in cases in which the right cavities of the heart were obstructed, and the return of blood from the brain prevented through the superior vena cava. This impediment induces encephalic venous congestion.

The dynamic excitation, or hyper-stimulation of the nervous

system, causes augmentation of the force and frequency of the beatings of the heart, and their irregularities. This kind of ataxy is the same as delirium, hallucinations, spasmodic or convulsive movements are, as regard the brain, which accompany acute meningo-encephalitis, or as nausea, vomitings, or spasms, with respect to the stomach.

The function of respiration is not affected in endocarditis, unless when there are concretions in the cavities of the heart, as already mentioned, and in such cases there is a great sense of oppression, jactitation, and a total want of sleep. It sometimes happens that the breathing is so impeded, that the patient must sit up for relief, and then the term orthopnoea is applied to this condition. The brain is generally affected in this class of cases, and there may be great fright or fear, delirium, spasms, convulsions, &c. The digestive and secretory functions may be deranged, as in all severe inflammations; and when there is dyspnoea, or orthopnoea, the sufferer may be partially or totally covered with a warm or cold perspiration.

The diagnosis between endocarditis and pericarditis is easily arrived at by attending to the signs of the latter which are already described; and it is to be always remembered, that the treatment of both diseases is the same.

Prognosis of Organic Lesions in the second and third periods of Endocarditis.—Endocarditis may terminate in resolution, but this is not the commonest result, when the disease is mistaken, unknown, or badly treated. In such cases, the malady may become chronic, and terminate, like all other inflammations of this kind, in induration, or hypertrophy of the tissue which it occupies, and in the organ under notice in contractions of the orifices of the cavities of the heart. The signs of these changes deserve great attention. The purring or vibratory sound, with irregularities, intermittences, and inequalities of the pulsations of the heart, are signs of great value in the diagnosis of the contractions of that organ. The triple or quadruple movements of the heart are also diagnostic of contractions of its orifices, and indurations of its valves. These signs may be ascertained in some cases by the application of the hand over the precordial region.

Percussion affords a much more extended, dull sound, than in the normal state, and equally applies to dilatation, with hypertrophy, which accompanies contractions of the orifices.

Auscultation supplies the most positive proof of contraction of the orifices and induration of the valves of the heart. The most certain signs afforded by this means of diagnosis are the bruits or sounds, termed bruit de soufflet, (bellows sound,) bruit de râpe, (rasp or file sound,) bruit de scie, (sound made by a saw.) When these are constant, and heard at all times, there cannot be any doubt entertained of induration of the valves, and contractions of the orifices of the heart. M. Bouillaud has found them in a hun-

dred cases, and informs us that two of these bruits may be present in some cases. I have verified the truth of this statement in an equal number of instances, and consider these signs conclusive. In one case nearly two hundred medical students heard the bruit de soufflet, not only distinct but loud, though some physicians of one of the large hospitals could not distinguish it.

There is no fixed pain usually attendant on diseases of the valves of the heart. Some patients complain of a sense of weight, tightness, and oppression in the region of the affected organ, and also at the epigastrium or pit of the stomach. They are subject to faintness, palpitations, and even sometimes to syncope. These symptoms are greatly increased by active exertion, walking up an elevated position, as a staircase, ladder, hill, &c., and under vivid mental emotions, as anger, fear, fright, &c. The pulse may vary from 140 to 160, and I think, I have found it higher, by counting it several times in succession for a period of five or ten seconds. I had a patient last year (1835) at the Western Dispensary, in whom the pulse was 162, and several students counted it on different occasions.

In fine, when a patient has constant bruit de soufflet, de râpe, or de scie, or the bellows, rasp, or saw sound in the precordial region, and when a vibratory motion, and tumultuous, irregular, or intermittent pulsations or palpitations of the heart exist at the same time, and that these and the symptoms already enumerated have existed for weeks, months, or years, there is little if any doubt—indeed, it is almost, if not quite certain, that the individual so affected labours under induration of the valves, with contraction of one or more orifices of the heart. There can be no doubt whatever when these local signs correspond or prevail with those termed general, which are the following:—

Influence on the Arterial and Venous Circulation.—Notwithstanding the irregular, unequal, and intermittent and violent beatings of the heart, the pulse is small, hard, and vibrating, more especially when the left ventricle is hypertrophied with contraction, and it is sometimes accompanied by a fremissement, (quivering,) more particularly in the arteries near the heart.

When there is contraction of the orifices of the heart, with induration of the valves, there is a greater or less obstacle to the venous circulation. All the external veins, and those near the heart, as the jugulars, for example, offer a proportional dilatation, according to the degree and duration of the disease. These veins become varicose and greatly enlarged, in some cases, on the sides of the neck and above the clavicles, whilst, at the same time, the anastomosing veins on the parietes of the chest and abdomen, which are scarcely perceptible in the normal state, become augmented in size. I have seen the abdominal veins enlarged to the size of a finger in the shoe-maker in Liquorpond-street. The jugular veins, in such cases, sometimes pulsate synchronously with the heart and

pulse ; but this must not be confounded with the expansion of these veins during each expiration, or with their elevation caused by the beatings of the carotids. The venous pulse of the jugulars is the effect of a reflux of certain quantity of blood into the right auricle and veins which disgorge themselves into it during the contraction of the right ventricle. This reflux occurs when the indurated tricuspid valve does not close during the systole, and when the right auriculo-ventricular orifice is so dilated that the tricuspid valve, whether normal or not, cannot close hermetically at the moment of the ventricular contraction. There is a male patient of mine, at the Western Dispensary at present, (Nov. 1836,) whose veins pulsate, and whose head is shaken at each pulsation.

The lividity, and violaceous tint of the face and lips are caused by an obstacle to the return of the venous blood ; and to this are also to be attributed the congestion of the hands, lungs, liver, brain, mucous, cellular, and serous membranes, the serous effusions into the last two, as ascites, hydrothorax, anasarca, and also the different passive hemorrhages. The patient, M. H., who was sent to the Workhouse of St. Margaret's parish afforded all the symptoms now described. Diseases of the organs mentioned, and many others, besides dropsies, are often caused by obstruction to the passage of the venous blood through the right cavities of the heart. The same mechanical cause often predisposes to apoplexy and paralysis.

Influence on the Respiration.—Slight dyspnoea, or shortness of breath after exercise or ascending an elevated situation, is the first derangement of the respiration ; but when the disease advances, the term asthma is generally and erroneously employed. In extreme cases, the patient cannot respire unless sitting up in bed, (orthopnoea,) and dreads suffocation on lying down.

Influence on the Cerebral Functions.—There is marked anxiety, fear, and despair marked on the countenance ; the eyes are prominent, haggard, and staring, the eyelids are depressed, the nostrils dilated, and the mouth almost constantly open to express extreme suffering, and to assist the impeded function of respiration. These movements are caused by purely synergic phenomena. The splendid discoveries of Sir Charles Bell have revealed to us the secret of this synergy, which exists between certain movements of the cheeks, nostrils, eyebrows, eyes, neck, and the motions of the muscles, correctly called respiratory. The influence of the seventh pair of nerves in the production of the movements of the face with those of respiration, has led Sir C. Bell to designate this nerve the respiratory nerve of the face.

When the disease of the heart has arrived at the last degree of intensity, the symptoms already enumerated are greatly augmented ; the respiration becomes so laborious and difficult that the sufferer cannot remain in the horizontal posture, he is obliged to sit up, and be supported with pillows ; the inferior extremities are

pendent, the superior fixed on the bed to afford a point of support to the inspiratory muscles, the body is strongly bent forward, the patient is in a state of constant restlessness, he calls for fresh air in the most plaintive tone, and with an expiring, interrupted voice often accuses the impotence of medicine, and ardently implores for death. He can seldom procure sleep, and if he has any, it is more or less interrupted; his dreams are unpleasant, and he awakes apparently frightened, with an aggravation of his laborious respiration.

"In some cases," says M. Bouillaud, "after the efforts of which the instinct of preservation is capable, the respiratory muscles themselves finally lose their power, and are plunged into the same state as all the rest. The patient has not the power to sustain himself against his sufferings, his head rolls upon his pillow, his body yields to its weight, falls upon its most dependent parts, and slips down the bed. A sub-apoplectic drowsiness, a kind of sleep which nature grants to his last moments comes on; he no longer knows those about him, his voice fails, his breath becomes cold, his eyes become fixed and glassy, his countenance relaxes, he expires, too happy if sudden death had spared him such a degree of his sufferings." This is a frightful but faithful picture, which every observant practitioner may witness.

Diagnosis of Contractions of the different Orifices of the Heart.—It is important to determine the exact position of contraction in the orifices of the heart. M. Laennec supposed, in the first edition of his work, that—1. The isochronism of the bellows, rasp, or file sound, with the pulse and ventricular systole, announced contractions of the arterial orifices. 2. That the isochronism of the same sounds or bruits with the systole of the auricles, indicated the seat of the disease in the auriculo-ventricular orifices. 3. That the bruit was more strongly heard in the region of the cartilages of the fifth, sixth, and seventh ribs if the left orifices were contracted, and at the inferior part of the sternum, on the contrary, when the right orifices were affected with contractions.

These diagnostics, though generally correct, are liable to exceptions. Thus, if the left arterial orifice is very distant from the corresponding auriculo-ventricular opening, there are cases in which it is difficult to determine in which of these orifices the contraction exists. The state of the pulse in contractions of the left orifices is a valuable means of diagnosis. Thus, it is more irregular, smaller, more unequal, and more intermittent in simple contraction of the aortic orifice, than in that of the left auriculo-ventricular opening. It is also in the contraction of the first of these orifices that we particularly observe the vibratory trembling or quivering (*fremissement*) of the pulse, first noticed by Corvisart, and which is always more marked in the vicinal arteries to the heart, as the subclavians and primitive carotids than the radials. We may add that the maximum of intensity of the purring trembling

(fremissement cataire) of the precordial region, as well as the maximum of intensity of the valvular bruit of friction (bruit de frottement valvulaire) occupies the space of the precordial region in relation with the contracted orifice.

The isochronism of the bellows, rasp and file sounds with the systole or diastole of the ventricle is of no importance, as the bruit de soufflet often exists during the double movements of the heart, in which cases it then replaces the double tic-tac. These cases are easily understood by reflecting, that the permanent opening of the diseased valves which no longer perform their normal function, admits of the reflux of a certain quantity of blood through this aperture, during the ventricular diastole or dilatation, if the contraction occupies the arterial orifices, and during the ventricular systole when the auriculo-ventricular orifices are affected. M. Filhos established a principle in the last case contrary to the opinion of Laennec, that the bruit de soufflet (bellows sound) is isochronous with the ventricular systole, and depends upon the reflux of the blood through the contracted auriculo-ventricular orifice. It is very true, says M. Bouillaud, that this reflux constitutes a cause of the bruit de soufflet, but still the passage or reflux of the sanguine column through the same orifice, during the ventricular diastole, is likewise a cause of the same phenomenon.

The contraction of the right orifices of the heart are infinitely more rare than those of the left, and more difficult to be detected, according to Corvisart, "as we cannot examine the pulsations of the pulmonary artery in the same manner as those of the aorta and its branches." Later observations have enabled us to overcome this apparent difficulty in diagnosis. It is now almost, if not positively certain, that if the bruit de soufflet and purring trembling sound have their maximum of intensity in the corresponding regions to the right orifices, and that there is at the same time a very marked venous pulsation of the jugulars, we have the signs of considerable hypertrophy of the right ventricle. These signs led me to conclude in two recent and most remarkable cases, at the Western Dispensary, which many medical students now (Nov. 1836,) attending my lectures at the Hunterian School of Medicine, have seen, that there was a disease of the valves in the right side of the heart, which the autopsies verified. There is another example in a patient who presented himself for relief a short time since, and whom many students have seen. I shall watch this case, and sooner or later have an opportunity of observing the morbid condition of the right side of the heart.

In all the preceding remarks, we have been considering induration of the valves and contraction of the orifices of the heart which have been of very long duration. But the diagnosis is by no means so easy when the disease is incipient or in its first stage.

The palpitations of the heart and habitual dyspnoea always increase on exercise, the rough sound and sense of oppression accom-

panying the beatings of the heart, even when the bruit de soufflet is not as yet developed. These signs, with cedema of the inferior extremities, especially towards evening, after the limbs have been in a dependent position during the day, leave no doubt of the diagnosis, when the symptoms of endocarditis had previously prevailed.

Symptoms and diagnosis of thickening of the living membranes of the Heart and valves, without contraction of the orifices or cavities of the Heart.—According to M. Bouillaud the diagnosis of simple thickening of the internal membrane of the heart, whether it depends on the organisation of false membrane on the surface of the endocardium or is the result of hypertrophy of this internal envelope, is often obscure in the present state of science.

When the hypertrophie thickening occupies the valves, and there is no other disease of these or contractions of the orifices, it causes a remarkable augmentation of the bruits of the heart. One of these sounds resembles the crackling made by separating two pieces of parchment, and hence called the parchment sound by some authors. This sound is strongest when the bicuspid valve is affected.

When the valves are thickened, indurated, and as if folded on themselves or puckered, so as not to possess their ordinary size, there necessarily results an obstacle to the circulation of the blood. In such cases the valves do not firmly close the orifice to which they are adapted, and hence there is a reflux of a certain quantity of blood through this orifice when they are elevated, the one set during the systole, and the other during the diastole. This reflux causes the bruit de soufflet, which is sometimes very strong, and synchronous with ventricular systole, if, as is commonly the case, the lesion occupies the auriculo-ventricular valves. In fine, this lesion most frequently coincides with adhesions of the valves, the signs of which we shall now examine.

Symptoms and diagnosis of adhesions of the auriculo-ventricular valves to the parietes of the Heart.—M. Bouillaud has described six cases of this adhesion, and in all these it coincided with a thickness and hardness, to a greater or less degree, of the valves, one or more of the laminae of which were shortened, and as if rolled upon themselves. He found the posterior lamina or layer of the bicuspid valve adherent. The symptoms of these adhesions are closely analogous to those of contractions of the orifices, as palpitations, bruit de soufflet, purring murmur, venous congestions, and passive serous collections. Whence are the similarity of symptoms in diseases so different? It is true that there is an obstacle to the course of the blood in both diseases. But in cases of induration of the valves with contraction of the orifices, the obstacle is in some degree double; whilst it is single in the disease under consideration. In this disease there is a reflux of a certain quantity of blood through the permanent orifice of the indurated and deformed valve. This reflux is inevitable, on account of the adhesion of a

certain part of the contour or circumference of the auriculo-ventricular valves. This adhesion does not allow the adherent portion of the valve to elevate itself during the ventricular systole, and to concur in closing the auriculo-ventricular opening. It is therefore physically impossible but that a part of the mass of the blood, pressed on all sides by the contracted ventricle, should regurgitate through the imperfectly closed orifice. M. Bouillaud offers the following diagnosis of simple adhesion of the valves with contraction by induration of the same valves. 1. In adhesion, the bruit de soufflet is much greater, less dry, and less rapish than in contraction when slightly advanced. 2. In adhesion, the beatings of the heart are less irregular, less unequal, and less intermittent than in contraction; the purring murmur, when it exists, is less rough and more diffused in the first case than the second. 3. In adhesion, the pulse is less small, and shorter, than in a considerable contraction. 4. In fine, in adhesion the stuffing or sense of suffocative oppression, the venous congestions, the passive serous collections, all things else being equal, exist to a less degree than in contraction. The importance of diagnosis is very great, as it leads to a correct prognosis, which, though unfavourable in severe and chronic diseases of the valves, with contractions of the orifices, to which they are adapted, will caution us to warn the patient or his friends, of the incurability of his disease, while others, who are uninformed, will give a different opinion, and state that the malady is asthma, chronic peripneumonia, &c., that life may be prolonged, and a cure effected.

Symptoms and diagnosis of vegetations of the internal membrane of the Heart, and particularly of the valves.—Vegetations in the auricles of the heart which are most common, are, to use the term of M. Bouillaud, indistinguishable. When the vegetations appear on the edges of the valves, they produce nearly the same symptoms as indurations of the valves, with contraction of the orifices, and are often confounded with them. It is impossible, in the present state of science, to diagnose between these two diseases.

From the preceding facts, it must be obvious that endocarditis may produce false membranes, sanguine concretions, vegetations, and indurations of the lining membrane of the valves of the heart. These degenerescences must more or less derange the circulation, induce an abnormal action of the heart, palpitations, lipothymia, syncope, orthopnoea, and predispose to apoplexy, hæmoptysis, phthisis, anasarca, and other dropsies; and there is no description, so far as my researches enable me to state, of adhesion of the aortic or pulmonary valves to the parietes of the aorta or pulmonary artery.

Development and causes of Endocarditis.—Endocarditis may be idiopathic or symptomatic, acute or chronic.

The causes of the first form, are the same as those of pericarditis, already enumerated. The symptomatic species often suc-

ceeds pleuro-pneumonia, phlebitis, arthritis, and articular rheumatism. The structure and functions of the parts of the heart which are inflamed by the influence of the causes that produce articular rheumatism, have a great analogy with parts of the articulations which are the seat of the last-named disease. The cavities of the pericardium and endocardium represent, as it were, articular cavities, and it is not surprising, as I observed in speaking of pericarditis, that their inflammations so often exist with those of the articular cavities, properly so called. (Bouillaud.) It is true, however, that during acute rheumatism, metastasis may occur, and the disease be transferred to the heart or its coverings, forming pericarditis, endocarditis, and carditis. Nothing is more common than the complication of acute rheumatism with pericarditis or endocarditis, or both; and that these diseases progress simultaneously.

There is nothing specific in the opinion of M. Bouillaud in acute articular rheumatism, nor consequently in rheumatismal endo-pericarditis, so far as their exciting cause is concerned. This special but not specific cause consists in great atmospheric vicissitudes, and particularly in the greater or less prolonged exposure to cold, whether dry or humid, the body having been previously very much heated, almost to perspiration.

Reflection upon this fact, will lead to the conclusion, that in acute rheumatism there is often inflammation of the fibro-serous and muscular tissues of the heart, and of serous membranes in other parts of the body. It also convinces the physician, of the indispensable necessity of rigorous antiphlogistic measures in acute rheumatism, and especially when there is pain in the chest, and particularly in the region of the heart, or in the pleura, accompanied by impeded or difficult respiration, and other signs of inflammation in the chest.

Metastasis of gout is also a cause of endocarditis or pericarditis, and other diseases of the heart. A remarkable illustration of this point was given by Mr. Wardrop, in the case of King George IV., and he was the first of the royal medical attendants who discovered disease of the heart, and that it had been caused by gout. Others of the attendants took the credit of the diagnosis; but most probably Mr. Wardrop will give the particulars of his diagnosis in his forthcoming work on diseases of the heart.

Progress, duration, complications, and prognosis of Endocarditis.—Endocarditis, like pericarditis, may be sur-acute, acute, sub-acute, and chronic. The nature and intensity of the causes of the disease, the idiosyncrasy or individual disposition of the patients, and the mode of treatment, will modify the progress of endocarditis. M. Bouillaud has observed, that the most acute endocardites were caused by exposure to cold, when the body was heated by exercise or wine in sanguineo-lymphatic temperaments.

In order to determine accurately the duration of endocarditis, it is necessary to appreciate a great many circumstances, as the de-

gree and extent of the disease, the state of simplicity or complication, the age and strength of the patients, and the therapeutic remedies employed.

It is difficult to form an accurate prognosis. Endocarditis generally terminates fatally in a few days, in consequence of concretions in the cavities of the heart.

The best and most efficacious treatment consists in copious depletion from a free orifice, frequently repeated; leeching or cupping on the region of the heart, by which, in a great majority of cases, a cure is effected, on an average, on the eighth day.

The duration of the chronic state is indefinite; and we have to bear in mind the morbid changes that occur, which have been already noticed.

The complications of endocarditis are similar to those of pericarditis. There is, however, a form of the disease caused by intense phlebitis, which is generally fatal.

As a general proposition, it may be maintained, that endocarditis is a very formidable disease, but generally terminates favourably if treated by vigorous antiphlogistic measures. But the results of this inflammation are generally incurable, and justify the epigraph by Corvisart, *hæret lateri lethalis arundo*.

Treatment of Endocarditis.—I have already hinted at the treatment, which chiefly consists in repeated depletions, general and local, nauseating doses of tartarized antimony, digitalis, colchicum, &c.; counter-irritants, blisters, warm turpentine, tartarized antimony, with a few drops of croton oil; with purgatives, sudorifics, &c. These means generally succeed in my practice.

The treatment of endocarditis is similar to that of pericarditis, already described, and must be most energetic. But a more copious depletion is necessary in endocarditis than in pericarditis. This will appear obvious when we consider the coagulation of the blood, or the formation of false membranes on the internal surface of the heart, and the other morbid effects already described, which clearly indicate the necessity of strangling endocarditis in its incipient stage. Every judicious and experienced practitioner will duly estimate the sufferings produced by diseases of the valves and orifices of the heart, and the numerous incurable maladies consequent on obstruction to the circulation of the blood through the heart. M. Bouillaud advises eight, ten, or fifteen grains of the powder of digitalis daily; a remedy seldom depended upon by British practitioners, or given in such doses.

It is very remarkable that this able and experienced author does not advise tartarized antimony in the treatment of endocarditis or pericarditis. I have found this remedy extremely efficacious in numerous cases; and my friend Mr. Wardrop has lately informed me that his observation verifies the efficacy of this medicine. My own experience is rather extensive in hospital, dispensary, and private practice, as I daily examine, on an average, a hundred patients, many of whom are affected with diseases of the heart or its cover-

ings, either in an idiopathic form or complicated with pneumonia, or pleuro-pneumonia, and other diseases of the lungs and brain.

When endocarditis becomes chronic without organic diseases, alleviation or a cure is often effected by small and repeated depletions, revulsives, counter-irritants, baths, absolute repose, digitalis, tartarized antimony, and the lowest regimen. In these cases issues, setons, repeated blisters, dressed with savine cerate, or blistering ointment diluted with lard or spermaceti ointment; antimonial ointment with croton oil, will be used with advantage.

R. Antim. Tart. $\overline{3j}$; Adipis, $\overline{3j}$; Olei Crotonis Tigllii, \mathfrak{mvi} —x. Frictetur drachma in regionem cordis, bis vel ter in die.

In cases of induration and thickening of the internal membrane of the heart, and especially of the valves, with contraction of the orifices, or adhesions, we cannot expect a radical cure, in the opinion of M. Bouillaud. He thinks there is nothing but the palliative method, repeated small bleedings, at greater or less intervals, repose, low diet, digitalis, diuretics, and hydrogogue purgatives, when serous effusions manifest themselves. Many patients have been relieved by this method.

This form of disease is often complicated with hypertrophy and dilatation of the heart, which are constant results of chronic endocarditis, and will be noticed hereafter. I may here observe, that I have found the most remarkable success in alleviating hypertrophy of the ventricles of the heart, by the following mixture, in gradually repeated doses, with reiterated cupping on the precordial region.

R. Potassæ Hydriodatis $\overline{5i}$ -ij-ijss ij-ijss-iv; Aq. Menthæ Pip. $\overline{5vij}$; Tinct. Digitalis, $\overline{5i}$ -ss; Liquoris Colchici, \mathfrak{mxx} xx-xxx; Acidi Hydrocyanici Formula Schellii, \mathfrak{mvi} -vij; Syrupi Simplificis, $\overline{5vij}$. Dosis, $\overline{5ss}$ bis vel ter in die.

I have already given an account of the great value of the hydriodate of potass in this class of diseases of the heart, and in diseases of other organs;* and I have been indebted to M. Magendie for a knowledge of this important remedy in the former cases. He has said, "in most cases the disease (hypertrophy of the ventricles) began to disappear within a month." The medicine has not afforded relief so soon in my practice; and in most cases it must be continued for several months, the dose being gradually increased. I have exhibited it in many cases with the most decided advantage; and there are some now (Nov. 1836) under treatment both at the Metropolitan Free Hospital and at the Western Dispensary, which are instructive and interesting. There are, however, some cases which do not yield to this remedy, and there are individuals who cannot bear it in increased doses. M. Magendie prescribes four drachms of the hydriodate of potass in an eight ounce mix-

* A new Practical Formulary of Hospitals, &c., 2nd edition, 1836.

ture; but none of my patients could bear so large a dose at first. I commence with a smaller quantity, and increase it every eight or ten days, according to the tolerance of the patient. I have continued it for twelve months in some cases, without any emaciation being produced; and this I believe to be a very rare effect, when the medicine is genuine, and judiciously administered.

CARDITIS ACUTUS ET CHRONICUS.

Corvisart first described carditis or inflammation of the muscular and intermuscular cellular tissue of the heart. He maintained that inflammation of the muscular tissue alone scarcely ever existed, an opinion since very well verified by M. Bouillaud. This distinguished author adduces analogical proof, that the different tissues of the respiratory and other organs are simultaneously inflamed. He very properly observes, that it will be impossible to appreciate correctly the history of inflammations which simultaneously affect the anatomical elements of an organ, if we do not know the history of inflammation of each of the tissues that compose it.

Corvisart concluded, that general inflammation of the heart had been observed; while Laennec has added, that examples of partial inflammation, characterised by the existence of an abscess or ulceration in the parietes of the heart, were much more common and accurately described.

Ramollissement, or softening of the heart, is a consequence of carditis, (Corvisart, Bouillaud,) though some consider it a disease, *sui generis*, (Laennec,) while others are of opinion it may be produced by putrid decomposition.

Ramollissement, suppuration, ulceration, perforation of the cardiac parietes, and induration, are consequences of carditis. Gangrene of the heart has not as yet been described, though the possibility of its occurrence cannot be doubted.

M. Bouillaud gives the histories of eight cases of carditis, terminated by ramollissement and suppuration. The first case was that of a man aged sixty-seven years, who complained of pain in the left side of the chest, dyspnoea, feeble, irregular, and intermittent pulse; delirium. Death took place on the seventh day from the invasion of the pain in the side. There was purulent effusion in the left pleura and in the pericardium. The heart was soft and flaccid, easily reduced to a kind of bouillie by the slightest pressure, with infiltration of a greasy matter between the fleshy fibres, and the developement of a very evident blush of vascularity.

The second case was that of a man aged twenty-seven years, who had partial effusion into the chest, slight fever, dyspnoea, and infiltration of the lower extremities. Death occurred two or three months after the effusion. There were adhesions in both sides of

the chest, an albuminous exudation on the pericardium, and a brownish ramollissement of the tissue of the heart.

The third case was that of a woman aged thirty-six years. Her symptoms were those of organic disease of the heart, which succeeded three attacks of acute articular rheumatism. She was seized with symptoms of acute carditis with dyspnoea, lipothymia, &c. She died in seven days from the access of the attack. The heart was voluminous, soft, and flaccid, with three or four abscesses in its substance, with a blackish redness, and a sanious pus in the substance of the auricular appendage. There was cartilaginous thickness of the mitral valve, with contraction of the left auriculo-ventricular orifice.

The fourth case was that of a man aged fifty-eight years, who laboured under rheumatism complicated with carditis. Death was sudden. There were purulent deposits on the parietes, pillars, and on the partitions of the heart.

The fifth case was described by Dr. Latham. The patient died of carditis. All the heart was of a brownish red colour, its substance was softened here and there, and when the ventricles were incised, innumerable drops of pus were observed on the muscular fibres.

The sixth case was that of a young man aged nineteen years. His disease was severe variola succeeded by abscess, and probably by phlebitis. He died on the fifty-fifth day. There was an encysted abscess, the size of a filbert, in the tissue of the heart.

These cases presented the symptoms common to pleuritis, bronchitis, pneumonia, and other diseases of the lungs; and would be mistaken by all practitioners unacquainted with auscultation and percussion. I have almost daily opportunities of observing cases of pericarditis, carditis, endocarditis, and the consequences of these complaints, which have been considered diseases of the respiratory organs, and treated accordingly, but of course without success. It is important to state that children of twelve years of age are subject to the cardiac diseases now mentioned as well as adults.

M. Bouillaud gives the histories of four cases of carditis, succeeded by *ulceration, perforation, and rupture of the parietes of the heart, and of the interventricular and interauricular partitions of the valves, tendons, and fleshy columns.*

The first case was that of a delicate man aged seventy-nine years, who had been a long time subject to frequent fits of syncope and great irritability of temper. He died suddenly, and there were ulceration and rupture of the left auricle.

The second was that of a child aged twelve years and a half. Here were signs of organic disease of the heart with obstruction to the circulation for five months and a half; the respiration was difficult, and death was caused by suffocation. The morbid appearances were hypertrophy and dilatation of the heart, perfora-

tion of the interventricular septum at the origin of the pulmonary artery, erosion and destruction of one of the valves of the aortic orifice.

The symptoms during life were, swelling of the face, violaceous colour of the lips, infiltration of the superior and inferior extremities, dyspnoea, and a very remarkable sound in the heart; the pulse was regular, but small, feeble, and very easily compressed. There were frequent fits of palpitations, during which a sense of suffocation was imminent. The patient could not remain in the horizontal position; he was obliged to sit, and bend the body forward,

I have seen two cases of boys of ten years of age, in which there were signs of organic disease of the heart; and others of girls of twelve and fourteen years, whose diseases were ascribed to pleuritis. In all, the impulse of the heart was greatly increased; the respiration interrupted, and more or less laborious; the countenance pale, bloated, and anxious; and the lips of a red or violet colour.

The third case mentioned by M. Bouillaud was that of a young man aged twenty-four years. He had none of the symptoms of aneurism of the heart or of the blue disease. He died of a febrile complaint at the end of six weeks. There were perforations of the septum of the heart, with communications of the four cavities between each other.

The fourth case was that of a young woman, aged twenty-two years, who died of phthisis. There was rupture of a fleshy column of the right ventricle, and there was a whitish clot, as if containing purulent matter.

Similar cases of ulceration and perforation of the heart were described by Benevenius, Dulaurens, Riviere, Borrichius, Bonnet, Senac, Morgagni, Peyer, Graetz, Corvisart, Laennec, and others.

Observations on Ulcerative Carditis, with the formation of an Aneurismal Cyst, or Aneurismal Tumour of the Heart.

Walter, Baillie, Zammini, Breschet, Berrard, Cruveilhier, Dance, Reynaud, Petigny, and Choisy have observed examples of the disease now mentioned; and M. Bouillaud has narrated the histories of four cases lately observed by him. The symptoms were inexpressible agony and anxiety, respiration very laborious and interrupted, though the chest resounded well in its whole extent. One patient complained of violent pain in the region of the stomach and liver. The pulse was small, contracted, feeble, and frequent. There was a tumour almost as large as the heart itself at the superior and lateral part of the left ventricle, containing dense sanguineous concretions, and communicating by a large opening with the cavity of the ventricle. The pericardium adhered to the external surface of the tumour. The heart of Talma, the celebrated tragedian, afforded an example of the disease under notice.

There was a communication between the inferior part of the left ventricle and an aneurismal pouch. Three other cases are detailed by M. Bouillaud.

Observations on Carditis terminated by Induration.

Induration rarely occurs after simple carditis, but is generally observed after pericarditis and endocarditis. M. Bouillaud never met with it, unless connected with the two diseases last mentioned.

Albertini observed a case of ossification of one of the auricles. Corvisart observed the substance as hard as strong leather, and the apex of the heart cartilaginous. Burns found the tissue of the ventricles perfectly ossified, so as to resemble the bones of the cranium. Renaudin reported a case to Corvisart of petrification of the heart; and M. Broussais found the organ indurated and like a cocoa nut. M. Bouillaud met with cases in which the fleshy columns and substance of the heart were fibro-cartilaginous in patients from the age of thirty to fifty years. This author describes ramollissement of the heart as characterised by the same phenomena as that of the brain, lung, &c., and considers it totally different from suppuration. He next gives an account of ulceration of the heart, with or without the formation of an aneurismal cyst or perforation. He agrees with Corvisart and Laennec, that it is impossible to distinguish carditis during life; and he states that he always found it complicated with pericarditis and endocarditis. He is not acquainted with any sign pathognomic of carditis alone. He observed the inflammatory ramollissement of the heart in persons affected with essential or idiopathic fevers, and he thinks this accounts for the extraordinary frequency of the pulse which often exists during the convalescence of these fevers. He judiciously concludes that inflammation of the endocardium would be sufficient to produce the phenomena.

There are no positive diagnostics of simple ulcerations or abscesses of the heart, nor of perforation of the organ, unless the sudden death of the patient. Even this event does not invariably happen.

A perforation may occur in the interventricular or interauricular septum, not only without causing death, but even without inducing any violent symptom. In no case, in eighteen, of false consecutive aneurism of the heart, was the disease detected during life. It is, therefore, extremely difficult, even by auscultation and percussion, to establish the diagnosis.

The causes and treatment of acute and chronic carditis, are precisely the same as of pericarditis and endocarditis.

Inflammation of the cellulo-adipose tissue of the heart has not been described by any author on the diseases of the centre of the circulation. M. Bouillaud is disposed to think, that the encephaloid cancer of the heart, is nothing but a diseased secretion of the tissue just mentioned. He also maintains that cartilaginous, osse-

ous, and calcareous productions are observed in early life, and are preceded by inflammation. He combats the conclusion that these degenerescences are confined to old age, as he has found them absent in persons of eighty years. It appears probable, in his opinion, that the perpetual friction to which the valves and the arterial parietes are subjected, is really a physiological or functional condition which ought not to be neglected, as it determines all the circumstances favourable to the developement of cartilaginous, osseous, or calcareous indurations of these parts. Every one knows that pressure and friction on certain parts, as the hands and feet, will cause different kinds of indurations; and this explanation is much more satisfactory than the vague notion that old age produces ossifications or indurations.

Cancer and Tubercles of the Heart are of comparatively rare occurrence, and have been accurately described by different authors mentioned by M. Bouillaud. He is disposed to consider these morbid growths the result of inflammation.

Hydatids or Serous Cysts have been found in the heart, and described by numerous authors. Such productions are, however, of very rare occurrence. The origin of these cysts is as yet undetermined. Hydatids have been found in every tissue in the body, and in many organs simultaneously.

ATROPHY OR DIMINUTION OF THE HEART.

Laennec found the heart of a man aged fifty-five years as small as that of a child of twelve years. Bouillaud observed the heart of a woman aged sixty-one as small as that of a child of twelve years old. In some cases the substance of the left ventricle was no more than a line and a half in thickness. In other cases the heart lost a third, a fourth, or one half its natural size.

Signs of Atrophy of the Heart.—The symptoms of atrophy are the reverse of those of hypertrophy already described. The pulsations of the heart are small, concentrated, the bruits which accompany them are feeble, the shock of the heart is felt with difficulty or not at all by the hand, or is much weaker than natural, and there is scarcely any dulness of sound in the precordial region. The pulse is small, thready, and hard in *concentric* atrophy, while it is soft, feeble, and full in *aneurismal* or *excentric* atrophy. The movements and sounds are extremely feeble and distant on auscultation. The first sound is very valvular, and clear in some cases, but when the disease is extreme, it is inaudible. Atrophy of the heart may exist in cases of general emaciation, but the latter condition may be extreme, and hypertrophy present. I have observed cases of atrophy in which the ventricle was wasted to the thinness of blank paper, and quite transparent.

Causes.—The causes are local or general. Among the local causes are long continued compression of the heart by effusion of

fluid, by tumours, or any other mechanical cause, and contraction of the coronary arteries by disease, as ossification, calcareous, or cartilaginous deposits. The general causes are different morbid states, or different conditions which impair the nutrition of the whole body; chronic diseases which induce great emaciation, such as phthisis, cancer, affections of the brain, liver, spleen, uterus, typhoid enteritis, eruptive fevers which do not prove fatal for two or three months, &c.

Treatment.—Nutritious aliment,—everything calculated to improve the general health; and the alleviation of diseases in all other parts which cause general emaciation, so far as this can be accomplished. Atrophy of the heart must in general be considered an incurable disease.

AUGMENTATION AND DIMINUTION OF ABSORPTION IN THE SEROUS AND CELLULAR TISSUES OF THE HEART.

Passive Hydropericardia, and Passive Edema of the Cellular Tissue of the Heart.

Passive hydropericardia does not essentially differ from the active species in anatomical characters.

The anatomical characters of œdema of the heart are a tremulous gelatiniform matter in the cellular tissue, which, on pressure, is found to be a transparent, serous, limpid, yellowish, or greenish yellow serosity. The infiltrated tissue is opaline, or of a dull white colour, as if it had been macerated in water for some time.

There is no sign by which we can positively recognise this disease of the heart during life; but we may suspect its existence in persons affected with passive general dropsy, which may extend to every part of the cellular tissue, which, it is to be recollected, is the base of every tissue and organ in the body.

Causes.—The causes of dropsies are numerous obstacles to the course of the blood, whether mechanical, physical, or vital.

The obliteration of the cardiac veins is a cause of passive hydropericardia, or œdema of the heart. A varicose state of the coronary veins and their branches, and a difficulty of disgoring themselves into the right auricle, was the cause of the disease in persons treated by M. Bouillaud.

Hydropericardia may be also induced by rupture of a serous cyst, or hydatid, or by blood effused into the pericardium.

Treatment.—Depletion, diuretics, purgatives, and the usual remedies for dropsy will be required.

PNEUMO-PERICARDIA.—HYDRO-PNEUMO-PERICARDIA.

The pericardium may also secrete gas which is termed *pneumopericardia*, and when combined with fluid, *hydro-pneumo-pericardia*.—(Bouillaud.)

In this disease the pericardium resounds on percussion like an inflated bladder, and if its parietes are incised the gases escape with a whizzing noise.

The causes of this disease are as yet unknown, and the diagnosis is drawn from the tympanitic and splashing sounds in the region of the pericardium. Laennec sometimes discovered pneumo-pericardia by the clear resonance under the sternum, or by the sound of fluctuation caused by the beatings of the heart, and by strong inspirations. In a case of hydro-pneumo-pericardia, M. Brichteau heard in the pericardial region a bruit or sound similar to that of water agitated by the wheel of a mill, which was evidently caused by the alternate motions of the heart. We must not mistake the similar sounds elicited from the same region when the stomach is partly distended with fluids and gas, and when it encroaches on the heart, as in dyspeptics, giving rise to palpitations and other functional derangements of the heart, which are often mistaken for structural or organic diseases. Nervous women, and the delicate of the other sex, are very liable to such derangements, but the distinction can be drawn by every scientific practitioner.

CHANGES IN THE DIMENSIONS OF THE CAVITIES AND ORIFICES OF THE HEART.

Dilatations of the heart were termed aneurisms, by authors, until a recent period, the one species was called *active*, which was dilatation with hypertrophy, the other species was termed *passive*, which consisted of dilatation with thinness of the parietes.

Dilatation of the cavities and orifices of the heart may be *general* or *partial*, and accompanied by thickening or thinning of the parietes. Dilatation with thickening constitutes aneurismal or eccentric hypertrophy. Dilatation with thinning of the parietes was termed passive aneurism. Cases are recorded in which the right cavities of the heart were prodigiously dilated and thinned, and the auricle appeared similar to a transparent membrane. (Fleury, Bouillaud.)

Dilatation may affect one, many, or the whole of the cavities of the heart, and may not be accompanied by hypertrophy, or thinning of the extended parietes. In some cases when complicated with hypertrophy, the heart becomes double or treble its ordinary size, and may become more or less irregular in form and situation.

Partial dilatation of the heart is sometimes preceded by rupture of the internal layers of the parietes of the organ, which is followed by the formation of an aneurismal cyst. The most frequent dilatation is observed in the pulmonary portion of the right ventricle.

Dilatation of the Orifices of the Heart.—M. Bouillaud describes cases in which the auriculo-ventricular orifice was four, and in one

case five inches in circumference. It is evident that in such cases the valves cannot perform their functions properly, and there must be more or less derangement of the action of the heart during the passage of the blood through it.

The cavities of the heart, like all hollow organs, dilate when there is any impediment to the course of the blood or other substance which is to pass through them. Thus in bad stricture of the urethra, the bladder enlarges, in contraction of the pylorus, the stomach enlarges, and in stricture of the intestine, the tube increases in size above the obstruction. In the same manner, if the valves of the heart are diseased, and offer obstruction to the passage of the blood, the cavity above them becomes enlarged as the accumulation of blood distends its parietes. It is also important to state that the auricles more readily dilate than the ventricles, and that the right ventricle more readily than the left. The auricle is distended when the auriculo-ventricular opening is contracted, and the ventricle when the arterial valves are affected. But it often happens, on account of the difference of resistance in the different cavities of the heart, that the cavity nearest to the obstacle, is not always the first which is dilated. Thus when the aortic valves are diseased, the left auricle is often dilated before the left ventricle. It is also to be remembered, that the different cavities of the heart which are closely connected with each other, are often dilated by any great obstacle to the course of the blood through them. Besides the mechanical force, the blood possesses an excitant and irritant power, in consequence of which, the nutrition of the heart becomes frequently increased, so that the same cause of obstruction to the circulation will not only induce dilatation but hypertrophy.

But if hypertrophy does not ensue, the contractility of the heart will be more easily overcome by the dilating power, and the circulation will be greatly diminished and impeded. Hypertrophy is not a constant complication with dilatation of the heart, and in many cases the dilated parietes are thinned, and to this disease the term passive aneurism was applied by Corvisart.

CAUSES.—The causes of dilatations or aneurisms of the heart, are all violent exercises, and all trades which require powerful muscular exertion. Thus porters, wheelwrights, paviours, &c. are often affected with this disease. All such causes tend to accumulate the blood in the heart. Powerful mental emotions, such as anger, hatred, jealousy, grief, &c., and the occupations which require the expression of the passions, as those of the tragic actor, the vehement orator, &c., are causes of dilatations of the heart.

Among the causes are deviations of the spine and all vices of conformation, tight lacing, &c. which diminish the capacity of the chest, and the latter compressing the abdomen, and impeding respiration and circulation, induces passive congestions of blood in the brain, lungs, and heart; followed by serous effusion, and often accompanied by a sense of suffocation.

DIAGNOSIS AND TREATMENT.—The diagnosis has been given in the accounts of hypertrophy and atrophy of the heart, and endocarditis. It is now only necessary to observe that when the valves do not completely close the orifices to which they are attached, there will be a reflux of blood, which will cause the bruits termed *de soufflet*, *de cataire*, and when the obstruction is in the left auriculo-ventricular opening it gives rise to pulsation of the veins, and to fluctuation in the jugular veins, (see Endocarditis.) While writing this article I have a most remarkable case of this kind, under my care at the Metropolitan Free Hospital, which is now greatly relieved by the use of the hydriodate of potass in combination with digitalis, colchicum, the sedative solution of opium and hydrocyanic acid.

The *treatment* is the same as for hypertrophy and atrophy of the heart as already described.

CONTRACTION OF THE CAVITIES AND ORIFICES OF THE HEART.

These diseases are caused by thickening of the endocardium, (see Endocarditis,) and especially of the fleshy columns, and deep-seated muscular layers, by compression of tumours, effusions, &c. on the heart, and the presence of sanguine concretions, whether recent, chronic or organised. Contractions of the cavities of the heart impede the circulation and give rise to venous congestions, serous effusions or dropsies in the different parts of the body. If the contraction occupies the left ventricle, the pulse will be small, as if the aortic orifice was affected. The contractions of the valves and orifices arise from the same cause, which is endocarditis, the treatment of which has been already described. In addition to the usual depletory measures, great advantage will be derived after the acute form of the disease has passed by, from the use of the hydriodate of potass in gradually repeated doses, leaving an interval of ten or twelve days between the period of augmenting the quantity.

I am in the habit of employing the following combination with great benefit, in hypertrophy of the heart, indurations of its valves, in chronic rheumatism, with enlargements of the joints, in nodes and secondary syphilis.

R. Potassæ Hydriodatis ʒj—ij—iiss—iij—iijss—iijss; Aquæ Menthe Pip. ʒvij; Vini Colchici ʒj—iiss; Liquoris Opii Sedativ. ʒj; Tinct. Digitalis ʒj: Dosis ʒss ter in die.

The digitalis is omitted except in certain cardiac diseases, and the hydriodate be gradually increased to the maximum dose, which few can bear, though M. Magendie has strongly advised it.*

* See my Medico-Chirurgical Formulary, 1837—and also my Practical Formulary of European and American Hospitals, second edition, 1836. Vide ante, p. 230.

PHYSICAL AND MECHANICAL LESIONS OF THE HEART.

The solutions of continuity of the heart may be spontaneous or traumatic, or caused by cutting instruments.

Ruptures of the heart are caused by ulcerations, or the bursting of aneurismal tumours of this organ, and they appear to affect the left cavities more frequently than the right in the proportion of six of the left, and four of the right, in ten cases, (Bouillaud.) In the last four cases it was the auricle that gave way. In four of the six first cases, the rupture occurred in the wall of the left ventricle, in one case it affected the mitral valve, and in another the columns of the ventricle. In none of the ten cases were the inter-ventricular and interauricular walls affected. In some cases there is one, in others there are two, three or five ruptures, (Ollivier, Rostan, Morgagni, Portal, Bland, &c.)

CAUSES.—The causes of rupture of the heart are predisposing and exciting. The predisposing are ramollissement or softening, thinning, abscess, or ulceration. The exciting causes are violent concussions of the body in general or of the heart; violent and sudden efforts, and in some cases the exertion of walking, riding, laughing, coughing, sneezing, &c.

The mechanism of rupture of the heart is the same as that of the stomach, uterus, liver, certain muscles, &c. Mr. Allan Burns was the first who explained, that rupture of the heart might be caused by violent action of the organ, in the same way as that of the womb, during very violent expulsive contractions, in very difficult parturitions.

SYMPTOMS AND DIAGNOSIS.—When the ruptures of the heart are extensive, there will be a sudden effusion of blood into the pericardium, and in some cases the patient dies as suddenly as if struck with a thunderbolt. M. Rostan describes a case of rupture, in which a coagulum stopped the opening, prevented copious hæmorrhage and sudden death. When the rupture is situated in the partition of the ventricles and the auricles, there will be a mixture of black and red blood, and according to some authors cyanosis or the blue disease will be produced.

In other cases there may be rupture of the fleshy columns, valvular tendons or valves, and then there will be more or less disorder of the circulation. MM. Bouillaud and Tarral state there may be a simple or a sibilant bruit de soufflet; but the former author has heard it when no such lesion existed.

Ruptures of the parietes of the heart, with effusion of blood into the pericardium, are necessarily fatal. Yet this is not the case with those of the interventricular or interauricular partition, of the fleshy column and of their tendons; but the present state of science does not enable us to form an accurate conclusion as to the symptoms or results of the latter diseases. It is scarcely necessary

to observe that there can be no *effectual treatment* for extensive ruptures of the heart ; of its fleshy columns or tendons.

WOUNDS OF THE HEART.

Wounds of the heart may be penetrating or not penetrating. They may be complicated with the presence of the foreign substance which inflicts them ; as a ball, or piece of a cutting instrument. The best account of them is that of Ollivier, (*Dict. de Médecine T. viij en 25 vols.*) This author describes sixty-four cases, in twenty-nine of which, the lesion was in the right ventricle, which forms the most uncovered part of the anterior surface of the heart ; the left ventricle was injured in twelve cases ; the two ventricles nine times ; the right auricle three times ; the left auricle once, the apex of the heart seven times ; but in three cases the seat of the wound was not described.

A fractured rib may likewise wound the heart.

PROGNOSIS.—The majority of wounds of the heart are suddenly fatal, though in some cases death does not take place for a greater or less period of time. In extensive wounds of the heart, the patient dies as suddenly as if struck with lightning : *quasi fulmine ictus, concidit*, says Diemerbroek in describing the death of a duellist, who was stabbed with a sword through the left ventricle. But wounds of the left ventricle are not always suddenly mortal. Morgagni mentions the case of a man who received a stab of a knife through the anterior part of the left ventricle. There was but a very slight discharge of blood at the moment of the injury. After having walked about sixty steps, the wounded man sat down, and died in about half an hour, while vomiting his dinner. A soldier fell on his bayonet, which penetrated between the sixth and seventh rib on the left side. He survived for forty-nine hours, and expired on the night-chair. A young man was stabbed with a knife under the left breast, and was seized with frequent fits of syncope. He did not expire until the tenth day after the wound was inflicted. There was a penetrating wound of the left ventricle.

According to M. Ollivier, wounds of the left ventricle are most suddenly fatal. He proves that wounds of the auricles are not so suddenly fatal as is generally supposed. On comparing the different cases of wounds of the heart, he states that wounds of the right ventricle are of the most common occurrence, but less frequently mortal.

The cause of sudden death in wounds of the heart is the compression of the organ by effused blood into the pericardium. (Morgagni, Ollivier.) This conclusion is doubted by Bouillaud. Bartholin was of opinion that the straitness and obliquity of the wound tended to retard death. M. Ollivier considers that the direction of the wound is the cause of prevention of sudden death ; thus a wound of the left ventricle may only separate the superficial

layers of the muscles, and transversely divide those of the deeper layers, and *vice versa*. A transverse wound in relation to these layers will suddenly give rise to a fatal hæmorrhage. Here we should consider the influence of the particular form of cutting instrument, which traverses the thickness of the ventricular parietes. According to M. Samson, the want of parallelism of the fleshy planes of the heart is the condition which most particularly favours the formation of a coagulum capable of stopping the wound.

These facts are not only deeply instructive in a pathological, but in a medico-legal point of view. A case is mentioned by Mr. Guthrie in which a flap of the substance of the heart hung down from the organ, and death did not take place for some time afterwards.

TREATMENT.—Many cases prove that wounds of the heart are not necessarily fatal. The following plan of treatment is proposed by M. Ollivier (d'Angers *Op. Cit.*) The first indication to be fulfilled is to enfeeble the circulation by copious and repeated bleedings, and to moderate at the same time the movements of the heart with digitalis, &c. It is also necessary, according to the advice of M. Samson, to keep the patient in an atmosphere as cold as possible, and to apply ice to the chest. The most perfect repose should be observed: the patient should be kept quiet in bed, and free from all mental emotions. The external wound should be closed in the usual manner, so as to favour the formation of a coagulum, which would stop up the wound. The most rigid antiphlogistic plan should be enforced. The lowest diet, with nauseating doses of tartarized antimony, are likewise beneficial in such cases.

CONCRETIONS OR POLYPI IN THE HEART.

Coagulation of the blood in the heart and in some of the large blood-vessels may occur during life, and give rise to concretions, which were formerly termed polypi. These are now generally divided into two classes, the recent or amorphous, and those of long duration, which are more or less organized. M. Bouillaud has detailed the histories of several cases, and he divides them into three species:—1. the recent or amorphous concretions, developed during the agony of death, or in a very short time after death;* 2. concretions which have undergone the first degree of organization; and 3. those that are perfectly organized.

M. C. J. Legroux gives a very full account of concretions developed during life, in a work expressly on the subject,† which I shall quote freely in this article.

* These concretions do not differ from those formed after death, and which are met with in almost all dead bodies.

† Recherches sur les Concretions Sanguines, dites Polypiformes développées pendant la Vie. Paris, 1827.

RECENT, OR AMORPHOUS CONCRETIONS, WITHOUT ANY EVIDENT TRACE OF ORGANIZATION.

M. Bouillaud describes two remarkable cases of this disease, which were preceded by a sensation of sudden suffocation, and followed by sudden death. The first was that of a man aged fifty-seven years, who laboured under disease of the heart, with paroxysms of orthopnoic respiration, and who expired suddenly. During the fits of extreme difficulty of respiration, the pulsations of the heart were strong, irregular, and dull; whilst in the moments of calm they were very sonorous. Copious blood-letting afforded immediate relief. Death, however, finally took place during a paroxysm, and amidst the agonies of suffocation. The cavities of the heart contained enormous clots of black fibrinous blood, and the largest was in the right auricle.

The second case was that of a child treated for acute bronchitis, which became attended with orthopnoea, lividity of the lips and cheeks, jactitation, and inexpressible agony. The pulsations of the heart were precipitate, irregular, and slightly sonorous, and there was a dull shock behind the sternum, with a feeble pulse. Death took place in a few hours. The left cavities of the heart contained clots of blood, and the right cavities were filled with a fibrinous clot of a citrine colour, semitransparent and interlaced with the fleshy columns of the heart and valvular tendons, and which extended into the pulmonary artery and into the superior and inferior cava.

SANGUINE CONCRETIONS WITH RUDDIMENTS OF ORGANIZATION, WITH OR WITHOUT THE PRESENCE OF PUS.

These resemble pseudo-membranous matter, the result of inflammation. M. Bouillaud relates eleven cases of this description, the results of which were the following. The first case was that of a man aged sixty-seven years, affected with double pneumonia, with extreme orthopnoea. The concretions were similar to false fibrinous membranes—commencing organization on the fleshy columns and valvular tendons. The second case was that of a woman aged eighty-six years, whose right ventricle contained semi-fibrous concretions. Another patient laboured under acute pleuritis, one under acute rheumatism, one under disease of the heart with venereal disease, and others under cerebral disease, typhoid enteritis, and urinary abscess.

FIBRINOUS CONCRETIONS ENTIRELY ORGANIZED.

A girl aged eighteen years, affected with a large tumour of the shoulder and in the axilla, was seized with hæmoptysis. The right auricle of the heart was filled to a great extent with a concretion, in

the centre of which there were vesicles filled with a semi-concrete matter. This polypiform concretion was traversed by an infinity of vessels, injected with red and black blood. It extended into the superior venæ cavæ, the right subclavian and jugular veins, with the parietes of which it was conformed as if by continuity of tissue. It was also prolonged into the right ventricle.

Another well marked case was that of a man aged thirty-six years, who was supposed to labour under aneurism of the heart. The right cavities of the organ contained clots of blood and a fibro-albuminous organized substance, adherent to the parietes of the cavity by filaments which required to be torn to separate them, and they were prolonged into the venæ cavæ superior, and also into the pulmonary artery, whose orifices they almost completely obstructed.

GENERAL HISTORY OF SANGUINE CONCRETIONS OF THE HEART DEVELOPED DURING LIFE.

Situation and Anatomical Characters of Polypiform Concretions of the Heart.

Sanguine concretions are most frequently found in the right cavities of the heart, and in the auricles more than in the ventricles. The reason of this fact is, that the course of the blood is more easily arrested in the right than in the left cavities of the heart, and that phlebitis more frequently extends to the right than to the left side of the heart, and perhaps there is a more marked disposition to coagulation in venous than in arterial blood.

The anatomical characters of concretions vary very much. Thus the recent ones do not differ from a clot of blood in a common vessel after venesection; and the quantity in the cavities of the heart has amounted to twelve ounces, (Bonillaud,) but some of which clots were formed after death. The organized concretions present different characters according to the state of their evolution. Thus in the first stage of their evolution they are whitish, analogous to gluten or prepared fibrin, elastic and slightly adherent to the parietes of the cavities of the heart, to the fleshy columns and valvular tendons, round which they are entwined. At this period of rudimentary organization, they may be compared to the buffy coat on the blood drawn during acute inflammation, or to false membranes in the commencement of their organization on serous membranes. In fine, there are intermediate degrees from the gelatiniform to the fibrous state, which appears to be the last term of density of concretions, (Legroux.)

When the concretions are in a more advanced state of organization, they adhere by real cellular tissue to the parts on which they are formed, (Bonillaud.) And thus engrafted on living parts they penetrate the vessels, they become hardened, and they truly resemble certain fibrous polypi, fungous vegetations, and tumours. M.

Legroux has found concretions so intimately connected with the valves, that it was difficult to determine whether they were formed by the blood in the cavities of the heart or secreted by the inflamed tissue. In some cases there is a quantity of pus in the centre of the concretions and these then resemble real unilocular or multilocular cysts. In other examples there are whitish, glutinous, membranous masses, which are the first lineaments of organization. Some ascribe the pus in concretions to inflammation of the concretions themselves, (Legroux and others,) while Bouillaud is of opinion that it is secreted, and then surrounded by the clot; but this able author does not deny that sanguine concretions may inflame and suppurate. These concretions may undergo various transformations, and they diminish the cavities and orifices of the heart according to their size. It is important to recollect this fact, for it is to it, that the principal symptoms of concretions in the heart are to be ascribed.

Causes and different Modes of Formation of Polypiform Concretions in the Heart.

Sanguine concretions are developed in the heart, arteries, and veins, under the influence of purely physical and mechanical conditions, which oppose the circulation of the blood, and also by causes which act chemically on this *fluid flesh*. In the first case, concretions are formed by a mechanism similar to that of coagulation of the blood after it has escaped from the vessels, but this process is as yet unexplained. If we practise venesection at the approach of the agony of death, or in those diseases of the valves or orifices of the heart which oppose a great obstacle to the circulation, the blood will be thick and semi-concrete on flowing from the vein. It is, therefore, to the concretion of the blood in the cavities of the heart and to their formation, that many cases of sudden death are to be ascribed in certain diseases of this organ.

As to the chemical and vital causes of sanguine concretions, "a kind of crystallization of the blood," the principal are, primitive or consecutive inflammation of the internal membrane of the heart, (endocarditis,) and the introduction of different foreign substances into the circulation, as pus for example.* M. Bouillaud is disposed to believe that in febrile and inflammatory diseases in which there is a buffy coat on the blood, there is a strong predisposition to fibrinous concretions of the heart, which strongly resemble, in

* It is ascertained that acids injected into the vascular system of animals coagulate the blood, as they do when it is removed from the body. There are also in the blood the elements of coagulation when heat or electricity are applied. But what the relation is between artificial coagulation and that which happens under the influence of certain pathological states, is not as yet determined.

their incipient stage of developement, the inflammatory coat of the blood; and he is convinced of this by the fact, that in almost all cases of concretions which he has met with, not caused by an obstruction to the course of the blood through the heart, they occurred with an idiopathic inflammation of the heart, or with an inflammation of some other organ, which powerfully reacted on the heart, or on the whole of the circulatory system.

Symptoms of Concretions of the Heart.—The signs of polypiform concretions of the heart will be modified according to the situation of these substances. They will necessarily produce more or less impediment to the circulation of the blood through the heart, difficulty of breathing, headache, symptoms of apoplexy, &c. When they occupy the right cavities of the heart, which is the most common occurrence, the blood does not penetrate into the lungs, but in small quantities, it reflows into the vessels situated behind the obstacle, it engorges all parts, but especially those that are most vascular, as the brain, the liver, &c. Hence apoplectic congestions, serous collections, or dropsies in the head, abdomen, and chest. But when the different parts of the body do not receive but a small quantity of blood which has been submitted to the air in the lungs, we observe to a certain extent the phenomena of asphyxia. These I have fully described in another work.*

The disorders are almost similar, when concretions obstruct the passage of the blood through the left cavities of the heart. But in this case there will be congestion of the pulmonary veins, which cannot disgorge themselves freely into the left auricle, and hence will arise a degree of dyspnoea which does not happen in concretions of the right cavities.

Concretions in different parts of the cavities of the heart will impede the circulation of the blood in different degrees, and those connected with the valves will most obstruct it.

The symptoms of concretions are tumultuous beatings of the heart, with obscurity of the bruits which accompany them, a simple or sibilant bruit de soufflet, a sense of suffocation, orthopnoea, anxiety, followed by venous congestions, and, in some cases, coma, stertorous breathing, with or without convulsions, smallness of the pulse, coldness of the extremities. When these symptoms supervene during acute pericarditis, endocarditis, or carditis, it is extremely probable that concretions are being formed in the cavities of the heart.

In chronic diseases of the heart with habitual dyspnoea or shortness of breath, there are violent fits of orthopnoea, threatening suffocation or instant death, it is almost certain that concretions are forming in the heart.

Prognosis.—The prognosis of sanguine concretions of the heart

* Manual of Medical Jurisprudence, &c. Second Edition, 1836.

when these are large and considerably obstruct the course of the blood, is most unfavourable, for they sooner or later prove fatal.

TREATMENT.—Copious depletion and other antiphlogistic measures, as in pericarditis; the free use of tartarized antimony, and of the neutral salts of soda and potass, which are supposed by some to possess a solvent power on the blood, (Legroux, Stevens, Cameron, &c.) Bouillaud entertains the opinion that recent concretions may be dissolved and carried into the blood-vessels; but that when they are organized they are incurable. But it remains to be determined whether the use of the hydriodate of potass might not cause their absorption, as it does of other adventitious growths.

DISPLACEMENTS OF THE HEART.

The heart may be displaced in different directions by the pressure of different tumours, by large aneurisms or effusions into the left side of the chest, or by enlargement of the spleen, morbid tumours near the diaphragm, or by abdominal effusions. The passage of the stomach or intestines into one side of the chest may also displace the heart. It has been found in contact with the diaphragm, with the spine, in different parts of the left cavity of the chest, and also in the right cavity of the thorax. The diagnosis is simple in such cases, and is readily determined by auscultation, percussion, and inspection.

HERNIA OF THE HEART.

This disease has been observed by different pathologists. Vaubouais describes a case of a fetus at the eighth month of pregnancy, in which the heart had escaped through an opening in the superior part of the chest, and it hung externally like a medal. Martinez, Besançon, Chaussier, and Breschet, have described cases of hernia of the heart, the accounts of which will be found in the excellent treatise of M. Bouillaud, which I have so freely quoted. M. Breschet has termed the disease *ectopia*, and divides it into three species:—1. thoracic ectopia of the heart; 2. abdominal ectopia; and 3. cephalic ectopia.

PRIMORDIAL VICES OF SITUATION AND CONFORMATION OF THE HEART.

This class of anormal states is most frequently observed in the fetus during intra-uterine life, and is rarely met with after birth. I have fully described them under the head of embryonology, in my *Lectures on the Physical Education and Diseases of Infants*,* and they do not properly belong to the department of practical medicine, nor to a manual of this kind. I shall now but briefly

* See London Medical and Surgical Journal, 1835, vol. i. p. 617, &c.

observe, that there may be acardia or absence of the heart, absence of one half of the heart, augmentation of the organ termed bicardia, and tricardia ; congenital transposition of the heart to the right side or dexiocardia ; communications between the right and left cavities of the heart, either in consequence of non-obliteration of the foramen ovale, or of anormal perforations between the interauricular and interventricular partitions. It is to be lamented that all these diseases are incurable.

NEUROSES, OR NERVOUS AFFECTIONS OF THE HEART.

There is no class of disorders so common as those of the action of the heart, and yet it is a most remarkable fact, that the best authors who have treated on diseases of this organ, have scarcely noticed them. Corvisart has not even named them ; Laennec has devoted only a few pages to their description : Andral has not described them ; Hope has nearly overlooked them, and even Bouillaud himself allots but five pages to their consideration. The best account of them with which I am acquainted is by Dr. Calthrop Williams, of Nottingham, though by no means a complete one.*

The nerves of the heart, in common with all others in the body, are liable to functional disorders which are not appreciable, as well as to structural or organic diseases. These disorders of function comprise all unpleasant sensations or feelings, from the slightest to the most intense pain, spasm, or neuralgia ; and may be divided into three principal classes—those of augmentation, diminution, and irregularity of the phenomena dependent on the nerves of the heart. M. Bouillaud has proposed the terms of *hyperdynamia* of the heart to augmentation of the movements of the organ ; *adynamia* to the diminution of these movements ; and *atarodynamia* to irregularity of the same movements. I should prefer more accurate terms, as *cardio-hyperdynamia*, *cardiodynamia*, *cardi-atarodynamia*.

Nervous palpitations of the heart may exist without any organic lesion, may continue for an indefinite period and be cured ; or they may be sympathetic of organic diseases of the heart, as inflammation, hypertrophy, atrophy, &c. ; or of diseases of the brain, the lungs, stomach, digestive and other abdominal organs ; or of those in any other part of the body. Both classes are often troublesome, and the former very unnecessarily alarming, and too often supposed to be organic and incurable. This was well observed by

* “ Practical Observations on Nervous and Sympathetic Palpitations of the Heart, particularly as distinguished from Palpitation the result of Organic Diseases ; to which are prefixed some General Remarks on the Use of the Stethoscope and Percussion, in Diseases of the Heart and Lungs.”—London, 1836.

the late truly eminent Dr. Baillie, as appears by his posthumous work :—" There are in truth few phenomena which puzzle, perplex, and lead into error the inexperienced (and sometimes the experienced) practitioner, so much as inordinate action of the heart. He sees, or thinks he sees, some terrible cause for this tumult in the central organ of the circulation, and frames his portentous diagnosis and prognosis accordingly. In the pride of his penetration, he renders miserable for a time the friends, and, by his direful countenance, damps the spirits of his patient. But ultimate recovery *not seldom* disappoint his fears, and the physician is mortified at his own success." Such mistakes are still too often made by those who do not employ auscultation and percussion; and there are as yet but a small proportion of medical practitioners, unless those educated within the last few years, who employ these means of diagnosis.

Mr. Wardrop has well observed in his valuable work, that nervous affections on the heart must precede structural diseases. " It is quite evident that such changes of structure must be preceded by a train of phenomena, and by a series of lesser disturbances in the function of the heart, the detection of which will enable us to apply remedial means with a probability of achieving the same advantages, as in the treatment of diseases in other organs."* It is therefore manifest that it is most important to study the nervous or functional derangements of the heart, which are of common occurrence; and also to distinguish them from organic or structural diseases, which can be easily accomplished.

NERVOUS PALPITATIONS OF THE HEART.

The term nervous palpitations of the heart is given to those frequent, strong and tumultuous movements which agitate the heart in individuals, who have no appreciable, material or organic lesion of this organ. These movements may be transient or momentary, or they may continue for a long time. They sometimes augment the force or impulse of the heart, and enable the practitioner to see and hear them at some distance from the sufferer; and the patients themselves sometimes hear them when they repose on the left side. Palpitations are sometimes accompanied by a slight and transient bruit de soufflet, which disappears as soon as the heart becomes quiet. They are also attended by a feeling of sinking and anxiety, that is difficult to describe, which patients refer to the region of the heart or pit of the stomach, and often designate " a

* On the Nature and Treatment of the Diseases of the Heart, with some New Views on the Physiology of the Circulation, by James Wardrop, M.D., Surgeon to the late King, Lecturer on Surgery, &c.—London, 1837.

sinking at the heart." In some cases there is a tendency to fainting fits or syncope, and a pulsation at the pit of the stomach, which has been mistaken for aneurism.

Causes of nervous palpitations.—The causes of nervous palpitations are extremely numerous, such as the various mental emotions, and every kind of muscular exertion, which must more or less accelerate respiration and the circulation of the blood.* Every cause that produces debility predisposes to the disorders under consideration.

Persons of a nervous temperament and those of both sexes who are subject to hysteria, hypochondriasis, melancholy, epilepsy, and general nervous disorders, are very liable to palpitations. Vivid mental emotions, joy, grief, anger, sadness, fear, anxiety, &c., the acts of weeping, sobbing, crying, laughing, swinging, and excessive intellectual labour induce them; so that the chief causes are mental or cerebral excitement, irritation or depression. Debility, during the convalescence of fevers or other acute diseases, or that caused by chronic or slow diseases, severe loss of blood by any kind of hæmorrhage, inordinate natural discharges, abuse or long use of purgatives, spare or unwholesome diet, the abuse of spirituous, vinous, or fermented liquors, want of sleep, long-continued anxiety and distress, close confinement, intense study, dissipation and debauchery, excess of venereal pleasures, and more particularly onanism, as well as excessive sexual intercourse, are causes of palpitations, and irregularities of the action of the heart. Persons subject to anemia, or great pallidity from loss of blood by abortion,† or any other cause, or to chlorosis, which is very analogous to anemia, are also very liable to nervous palpitations of the heart.

Chlorotic girls are often supposed to labour under organic diseases of the heart, when there is only functional or nervous disturbance of the organ. They complain of palpitations, pain in the region of the heart, head-ache, difficulty of breathing, pain in the left side over the spleen, &c.; they are bled, leeched, cupped, blis-

* Mr. Wardrop has established the existence of three most important functions connected with the circulation of the blood, which had hitherto been overlooked.

"1. That the muscles, besides being the active organs of locomotion, perform the important office of increasing the quantity of arterial, as well as of venous blood within the cavities of the heart.

"2. That the lungs regulate the supply of blood to the heart, so as to prevent congestion within the heart's cavities; and,

"3. That the subcutaneous veins performing the office of a reservoir, prevent congestion of blood within the pulmonary vessels."—*Op. Cit.*

† The Cyclopædia of Practical Surgery, edited by W. B. Costello, M.D. Part 1. April 1837. Art. Abortion, by M. Ryan, M.D.

tered, &c., when the opposite treatment ought to be employed, as tonics, quina, strychnia, chalybeates, iodide of iron, &c. Such persons may have a transient bruit de soufflet, or bellow's sound of the heart, and a musical sound in the crural, subclavian, and carotid arteries, which is termed *bruit de diable*, from its resemblance to the whizzing of a double top, used as a toy in France, and termed diable. Palpitations are also ascribed in other cases to organic diseases of the heart, but the diagnosis cannot be mistaken by any one who will read with care the preceding account of such diseases. Persons of a nervous temperament and full habit are also very subject to palpitations. They are affected on going up stairs, or any other ascent, or raising the arms, carrying or lifting any weighty substance, using any exertion. They are most affected in cold, moist, or foggy weather. They experience pain or numbness in some part of the left arm, throbbing in the head, fulness in the neck, sense of strangulation in the throat, fluttering of the heart, or as if it was grasped or compressed, and sometimes its motion is termed rolling, thumping, strong then weak, irregular or intermittent. It is maintained that when the action of the heart is intermittent, there is a complete though instantaneous suspension of the contraction of the organ; and when the pulsation is irregular, that there is only a partial contraction. Thus Laennec described *real* and *false* intermittence of the heart's action.

Persons who suffer from spinal irritation are also very liable to palpitation, and I have counted the pulse 162 in such cases. There are also pains extending from the spine to the abdominal and thoracic organs, to the neck, shoulders, head, limbs, and, by nervous sympathy, to every part of the body. The respiration is difficult, or easily rendered so, on any slight exertion or mental emotion; and the pressure of the stays on the chest, round the waist, or lower part of the spine, is intolerable. Pressure on the affected part of the spine has suddenly induced pain in the chest, cough and palpitation; and the disease is very common in large towns to girls and young women from the age of fifteen to twenty-five years, and in some to fifty. I have fully described it elsewhere, to which I beg to refer the reader.* Lastly, nervous palpitations are very common at the cessation of the menstrual function, and to women labouring under diseases of the womb, ovaries, breasts, or any chronic complaint. They may be slight, transient, and intermittent, like all other nervous disorders; and they recur more frequently in proportion as the heart becomes more irritable; but they do not produce any serious alteration of the health for a long time, though I have known them, when induced by terror, to be speedily fol-

* See Manual of Midwifery and Diseases of Women and Children. Third edition, plates, 1832. By M. Ryan, M.D. See also Teale on Neuralgia. Tate on Hysteria. Addison on Uterine Irritation. Williams on Nervous Palpitation, &c.

lowed by hypertrophy of the heart. They are most troublesome after vivid mental emotions and muscular exertion, though they are sometimes most distressing when the body is in a state of repose, as during the first part of the night, when they often prevent sleep for several hours. They are also occasionally accompanied by a sensation of internal agitation or fluttering in the head, chest, or abdomen, and there is often a copious and frequent evacuation of urine, when the patient is hysterical. They are least troublesome when the person is in the open air and taking exercise; a fact attested by most nervous women.

DIAGNOSIS.—The diagnosis is very difficult in some cases, (Andral, *Dict. de Med. en vol. 21.*) though extremely easy by means of percussion, auscultation, vision, and touch, by which the heart can be measured with *geometrical* precision, and its organic diseases determined, so that nervous palpitations can be easily distinguished from those accompanying considerable organic lesions of the heart, (Bouillaud.) In nervous cases the sounds of the heart's contraction, though clear, are not heard loudly over a great extent of the chest. Nervous palpitations are generally without impulse; the head of the auscultator, &c. is not sensibly elevated as by the increased motion and shock of hypertrophy. They are also known by the absence of the signs which accompany organic diseases of the heart, and more frequently affect the auricles than the ventricles, and the right auricle than the left, (Professor Home.)

TREATMENT.—In plethoric individuals, general and local bleeding from the region of the heart, by leeching, cupping; and then the use of tartarized antimony, digitalis, hydrocyanic acid, colchicum, antispasmodics, and a proper use of purgatives. In such cases, low diet, repose, and quietude of mind and body, will be necessary. Counter-irritation by antimony or blisters, or an anodyne plaster, over the region of the heart, as one of belladonna, opium, hyoseyamus, or conium, will be very beneficial. In delicate, nervous, or chlorotic persons, tonics, chalybeates, warm or cold baths, shower baths, change of air, a nourishing diet, improvement of the digestion and general health, with moderate exercise, form the indications of the treatment. Blood-letting is generally injurious, and I have known the worst consequences produced by it. Chlorotic girls complain of head-ache, palpitations of the heart, and agitations in many or most parts of the body; and these symptoms will be aggravated by bleeding, purging, low diet, &c. In such cases there is anemia, or, an universal pallidity of the whole surface of the body, or a want of red blood, which is not to be supplied by depressing measures.

In nervous palpitations from mental emotions, tranquillity of mind is indispensable, and moral means alone can remedy moral palpitations. It is useful to observe, that nervous palpitations are often aggravated by the fear of organic disease of the heart; but

if the medical practitioner convinces his patient of this error, a cure will, in most cases, be very speedily accomplished.

NEURALGIE OF THE HEART.

Neuralgic pains in the heart are transmitted from the nerves of the organ to the phrenic, intercostal, pneumo-gastric, brachial, and cerebral plexuses, &c., and not only cause derangement of function in all the parts supplied by these nerves, but by sympathy in all parts of the body. It is most probable that certain cases of nervous asthma, and angina pectoris are simply neuralgic affections; and these are generally relieved by powerful sedatives and antispasmodics, as in cases of nervous palpitations.

Spasm of the Heart is described by Laennec, though considered an imaginary disorder by Bouillaud, who states that there is no positive fact to attest its existence. But I see no reason why the heart should not suffer from spasm as well as all other muscular organs.

LIPOTHYMIA—NERVOUS SYNCOPÉ.

Swooning, lipothymia, and syncope are only degrees of the same nervous affection—a diminution of the innervation of the heart. The highest degree, which is syncope, is really a momentary paralysis of the heart.

The phenomena of complete syncope are similar to those of sudden death, and only differ by life being restored in the majority of cases, though in some rare cases real death takes place. It is a most important physiological point in criminal jurisprudence to distinguish between apparent and real death, or whether contusions or wounds were inflicted before or after death, and one which I have fully considered in another work.*

A person about to be attacked with syncope, experiences an indescribable distress, or feeling of faintness; the eyes become dim, and covered with a kind of film; there is a sense of singing or buzzing in the ears, the countenance and lips are pale, the mind fails, and the body is covered with a cold perspiration; the limbs fall as if inert masses, and are unable to support the body; the person falls on the ground or floor; the respiration and pulse disappear, and no sign of external life remains: "*it is momentarily eclipsed.*" Nevertheless, the functions sooner or later return, and life is restored.

Syncope does not continue, in general, longer than a few seconds; but, in some cases, it persists for several minutes. It is not to be confounded with that cataleptic or hysterical species characterized

* A Manual of Medical Jurisprudence and State Medicine. By M. Ryan, M.D. Second edition.

by want of intelligence, which may continue for several hours or days, because the complete absence of the beatings of the heart could not continue so long a time without causing real death.

It is proper to observe, that the feeling of weakness and sinking which usually precedes syncope is not always felt; for some persons experience a feeling full of charms, of sweetness, and almost ravishing delight.

CAUSES.—The causes of syncope are very various and opposite; such as joy, and grief, love and hatred, &c. Syncope may be the effect of severe physical pain in any part of the body, or of vivid mental emotions, of sensations produced by the sight of certain objects, by certain sounds, odours, &c. Certain poisons, as narcotics, hydrocyanic acid, septic miasms, or odours, and loss of blood by depletion or hæmorrhage, induce the disorder under notice. In fine, great obstacles to the circulation of the blood also suspend the action of the heart, and cause syncope.

TREATMENT.—When syncope is purely nervous, as in nervous or hysterical women, there is seldom any danger. The sufferer ought to be placed in the recumbent or horizontal position, on sofa, bed, or on the floor, fresh air admitted, cold water sprinkled on the face and neck, ammonia, hartshorn, burnt feathers, æther, eau de Cologne, vinegar, and a thousand other means in popular use, will be sufficient to restore animation.

The other indication will be to remove the exciting cause, and to improve the general health by mild aperients, mercurial alteratives, tonics, &c.

IRREGULARITIES AND INTERMITTENCES OF THE PULSATION OF THE HEART.

In my history of the PULSE, I described the natural action of the heart, and its morbid states in the various disorganizations of the centre of the circulation, and perhaps in all other diseases. I have now to observe, that the irregularities and intermittences of the pulsations of the heart often arise from the causes which produce nervous palpitations, and will be relieved by the same remedies. They may also depend on organic diseases of the heart, as already described. It is worthy of notice, that the pulse at the wrist and heart may be irregular or intermittent during health, become regular during acute disease, and return to its former condition during convalescence or recovery. For a full disquisition on this subject, see the essay already cited.

In the preceding history of diseases of the heart, I have given a much fuller account than can be found in any of our national works on that subject, and I have selected the most valuable information from the latest authors to the period at which I write, May, 1837. I deemed this indispensably necessary, because diseases of the heart are as common as any other of the body, and are

very often mistaken for diseases of the lungs, as asthma, chronic bronchitis, phthisis, &c., and because they are not as yet fully described in any of our works on practice of medicine, or even in our best monographic treatises on cardiac diseases. Thus the works of Dr. Hope and Dr. Elliotson, which are exclusively devoted to the consideration of this class of complaints, do not comprise the whole of them, and omit many which are now placed before the reader. Influenced by these convictions, I offer a more comprehensive though more concise account of the nature and treatment of diseases of the heart, than any in our language with which I am acquainted. I have divided diseases of the heart into structural or organic, and functional, in the same manner as I have those of the brain, spinal marrow, lungs and respiratory organs, the digestive and secretory organs, as the stomach, intestinal canal, liver, kidney, skin, genito-urinary system, &c. The adoption of this arrangement has enabled me to place a most important class of diseases, hitherto neglected, in as clear a manner as those of any other organ in the body. These I might have illustrated by numerous cases from the works of Bouillaud and others, as well as those which have fallen under my own care both in hospital and private practice, had not the limits by which I am circumscribed compelled me to be as concise as possible, and to avoid details of cases which might be considered digressions in an elementary work of this description, which is chiefly intended for medical students and junior practitioners.]

ORDER II.

ADYNAMIÆ.

CHARACTER.

A diminution of the involuntary motion, either vital or natural.

GENERA.

SYNCOPE	. . . . .	Fainting.
DYSPEPSIA	. . . . .	Indigestion.
HYPOCHONDRIASIS	. . . . .	Hypochondriacism.
CHLOROSIS	. . . . .	Retention of the Menses.

SYNCOPE.—FAINTING.

SPECIES.—1. *Syncope accidentalis* ; originating from an evident cause.

2. *Syncope cardiaca* ; often returning without apparent cause, or vehement palpitation of the heart at intervals.

3. *Syncope anginosa* ; attended with stricture on the chest, and pain striking up to the shoulders and down the arms.

SYMPTOMS.—Remarkable anxiety about the heart, followed by a sudden deprivation of all the animal and vital powers and actions of pulse, of sense and motion. Sometimes the loss of sense is incomplete, (*lipothymia*.) when the patient turns cold and pale, yet the pulse continues to beat, or rather to tremble, and respiration is just perceptible ; at others (*asphyxia*) not the smallest sign of life can be perceived ; the face has a death-like paleness, the extremities are cold, the eyes shut, the mouth sometimes shut and sometimes open, the limbs flaccid, and the strength quite gone. A recovery is announced by deep and heavy sighs ; and is frequently accompanied with vomiting. It sometimes terminates in epilepsy and convulsions.

CAUSES.—*Predisposing*.—Nervous irritability and delicacy of constitution ; debility, however induced ; profuse evacuations, especially of blood ; violent passions of the mind ; surfeits ; excessive pain ; organic diseases of the heart or large vessels.

Proximate.—Diminished action of the heart and arteries, or their total quiescence.

TREATMENT.—*Indications*.—1. During the paroxysm, to excite the return of the action of the heart and arteries.

II. In the interval, to prevent the recurrence of the disease.

The first indication requires,

1. Bleeding, when the disease has arisen from any other than

a debilitating cause; in that instance evacuations would be prejudicial.

2. Emetics, if the patient be capable of swallowing; more especially indicated in syncope arising from any cause of saburra. Vomiting may be sometimes excited by tickling the fauces with a feather dipped in some stimulant liquor.

3. Acrid stimuli applied to the nose, and taken internally, as soon as the capacity of swallowing returns; such as the carbonate of ammonia, liquor cornu cervi, and the like.

When syncope is induced by large evacuations of blood, diffusive stimulants are to be used cautiously.

To fulfil the second indication,

1. The causes must be removed by which it was induced. If debility, by tonics; as bark, steel, &c.; antispasmodics.

2. Other remedies, adapted to the several causes above enumerated.

When fainting fits are produced by organical affections of the heart, or neighbouring viscera, all that can be done is to palliate symptoms of fainting, and endeavour to remove the primary disease.

OF SYNCOPE ANGINOSA; OR, ANGINA PECTORIS.

SYMPTOMS.—Upon exercise, especially when walking up an ascent, and after a full meal, a sudden and violent pain across the chest, extending down the arm as far as the insertion of the deltoid muscle, accompanied with a sense of stricture, so acute as to threaten immediate destruction. The patient is instantly obliged to stand still, and the moment he does so all the symptoms vanish. After repeated attacks of the disease, it is excited by slighter causes, and the paroxysms are more violent. The pulse sinks, and becomes weak and irregular; the countenance pale; cold sweats; constant cough; expectoration of viscid mucus; the patient is, at times, incapable of lying down: at length, a fit more violent than usual puts an end to his miserable existence.

CAUSES.—Ossification of the coronary arteries of the heart; ossification of the valves of the heart; morbid accumulation of fat; incapacity of action in the heart, excited by every thing which hurries the circulation, and accelerates the passage of the blood to the depraved organ, as violent exertion, certain passions of the mind, sneezing, coughing, straining at stool, &c. [Dr. Uwins well observes, that various diseases of the heart may produce the symptoms of this disease.—*Compendium of the Practice of Physic*. See also Copland's elaborate *Dictionary of Practical Medicine*, 1832. It is most common to gouty, rheumatic, studious and sedentary persons, and generally occurs after the age of fifty, though Dr. Copland has seen it at the age of thirty-four.]

TREATMENT.—*Indications*.—I. In the paroxysm, to alleviate the distressing symptoms above described.

II. In the interval to prevent the return of the disease.

The symptoms are sometimes relieved,

1. By bleeding. Dr. Parry recommends the patient to be laid in a recumbent position, and a small quantity only of blood drawn away.

2. By antispasmodics: spiritus ætheris sulphurici compositus; opium.

R. Spiritus Ætheris Sulphurici Compositi $\text{f}\overline{\text{ss}}$: Misturæ Camphoræ $\text{f}\overline{\text{vjss}}$; Syrupi Zingiberis $\text{f}\overline{\text{ss}}$: Misce: Cujus capiat æger cochlearia duo magna bis in horas urgenti dolore.

R. Spiritus Ætheris Sulphurici Compositi $\text{f}\overline{\text{ij}}$; Spiritus Ammoniacæ Succinati $\text{f}\overline{\text{ij}}$; Misturæ Camphoræ $\text{f}\overline{\text{vj}}$; Syrupi Aurantii $\text{f}\overline{\text{ss}}$: Misce: cujus adhibeantur cochlearia duo magna omni hora in dolore.

To both of these mixtures $\overline{\text{j}}$ of the [liquor opii sedativus] may be added, as the combination of opium with æther has been found serviceable. Colchicum, hydrocyanic acid, and digitalis, are sometimes used with advantage.]

3. Emetics were administered by Dr. Percival.

4. Carminatives; as cordial confection, cardamoms, ginger, pepper, and the like.

5. Blisters [antimonial ointment with croton oil, or hot turpentine fomentation over the cardiac region.]

The return of the paroxysm is to be prevented,

1. By removing all the existing causes.

2. Diminishing plethora by abstemious living, and vegetable diet.

3. Abstinence from every thing heating; as spices, wines, and all fermented liquors.

4. Guarding against vehement emotions of the mind.

Issues; setons; blisters to the chest; nitrate of mercury; arseniate of potass and sulphate of zinc, in some cases, are said to have been useful. [All the symptoms of this disease may be caused by dyspepsia, and cease when the latter affection is removed. See my Essay in the *London Medical and Physical Journal*, 1824. Jurine considers it a nervous affection; and he, Laennec, Deportes, and Chapman, ascribe it to neuralgia of the cardiac and pulmonary nerves.]

DISEASES OF THE RESPIRATORY ORGANS.

CYNANCHE TRACHEALIS.—THE CROUP.

SYMPTOMS.—The disease generally creeps on imperceptibly, beginning with hoarseness and wheezing, short, dry cough, and sometimes a rattling in the throat during sleep; the difficulty of breath-

ing increases, and at length becomes indescribably anxious; the face is flushed and the veins of the neck varicose; the voice, in speaking and coughing, acquires a shrill and peculiar sound, similar to the crowing or a cock, or to the noise which a fowl makes when caught in the hand. The sound of inspiration at first resembles the passing of air through a piece of muslin; afterwards as through a metallic tube. At the commencement of the disease, the cough is dry; soon, however, a viscid matter is brought up, with portions of film or membrane of a whitish colour; and the efforts made to expectorate these are often so distressing as to endanger strangulation. It is accompanied with the symptoms of inflammatory fever. It most frequently terminates fatally about the second or third day, when the patient expires from suffocation.

CAUSES.—*Remote and predisposing.*—Its attack is mostly confined to children between the age of three and thirteen years. It is more frequent in low situations, and on the sea-shore. It may be induced by any of the causes of inflammation. It has been epidemic, and is by some supposed to be contagious.

DIAGNOSIS.—The peculiarity of breathing, of speaking, of coughing above described, are the pathognomonic symptoms.

From the convulsive asthma of children.—This disease attacks children of the same age, and is attended with symptoms much resembling those of cynanche. Distinguished by its consisting of repeated paroxysms, having an interval of twelve or fifteen hours; by the attack being more sudden, and not at first attended with fever; by being unattended with expectoration; by the respiration, though equally sonorous, having a much deeper sound.

PROGNOSIS.—*Favourable.*—Early and copious expectoration, the breathing not much impeded, the voice little changed, the febrile symptoms moderate.

Unfavourable.—Vast anxiety, anxious difficulty of breathing, violent fever, the sound of the voice becoming more acute, no expectoration.

TREATMENT.—*Indications.*—The same as obtain in all the phlegmasiæ.

They are best fulfilled by,

1. General and topical bleeding from the jugular vein, and by the application of leeches to the larynx and trachea.

2. Emetics in full and nauseating doses, especially ipecacuanha, squills, or tartar emetic, which is perhaps the most certain of all, and the least objected to by young persons.

R. Vini Ipecacuanhæ fʒss; Oxymellis Scillæ fʒiij; Misce: cujus sumat æger cochleare unum minimum subinde.

R. Tincture Scillæ fʒjss; Oxymellis ejusdem; Aquæ destillatæ fʒjss; Misce: capiat cochleare minimum omni hora.

R. Vini Antimonii tartarizati fʒij; Aquæ destillatæ fʒjss; Oxy-

mellis Scillæ f̄ss : Misce : ejus sumat cochleare unum minimum subinde ad nauseam vel vomitum promovendam.

3. Cathartics of neutral salts or submuriate of mercury.

R. Magnesiae Sulphatis ʒij ; Infusi Sennæ f̄xij ; Syrupi Rosæ f̄ij : Fiat mistura, ejus capiat æger cochleare magnum pro re nata.

R. Hydrargyri Submuriatis gr. ij ; Pulveris Antimonialis gr. ij : Fiat pulvis catharticus ex syrupo potandus.

4. Blisters to the neck, kept open by the use of the unguentum cantharidis, or unguentum sabinae.

5. Submuriate of mercury, so administered as to excite salivation, has been successfully employed, [and is one of the best remedies.]

R. Hydrargyri Submuriatis gr. ij ; Sacchari purificati gr. vj : Fiat pulvis, tertiâ, quartâ vel sextâ quaque horâ, ex quovis vehiculo crasso, deglutendus.

[If the bowels be soon purged and the motions be green, the submuriate of mercury must be discontinued, and mercurial ointment rubbed into the thighs or axillæ, if the inflammation is not abated.]

6. Strong decoction of senega, frequently taken into the mouth in small quantities, has been successfully used to promote a separation of the films or coagula.

R. Radicis Senegæ contusæ ʒij ; Aquæ Puræ Oj : Coque per horam dimidium, dein cola pro collutorio.

[Others recommend a strong solution of alum, or nitrate of silver; but the former is generally preferred. The danger of croup arises from the formation of a false or adventitious membrane, which may extend from the trachea into the bronchi, and become so thick as to fill the wind-pipe, and cause suffocation. It has been expelled by vomiting, and resembled the finger of a glove.

The mode of treatment in cases of infants or children which I employ is the following :—

Venesection from the back of the hand or instep, the limb being immersed in a basin of warm water ; leeches along the trachea : an emetic ; (antimonial or ipecacuan wine ;) warm bath ; a sinapism to the throat for a quarter of an hour ; and repeated doses of calomel. In infants leeching is generally successful ; but should cerebral or pulmonary congestion supervene, we must abstract blood from the neck and thorax, place the patient in a warm bath when the brain is congested, and at the same time apply cold to the head ; but especially while the body is in the bath. When there is bronchitis, we leech and blister the chest.

In either case sinapisms or blisters should be applied to the legs ; and when children are affected, the former should not be left on longer than five or ten minutes ; and the latter about three hours.

The great danger arises from the formation of false membrane ; and this is to be prevented by local and general bleeding, with the other remedies described. The blister should be applied along the trachea ; and in bad cases, mercurial inunction over the angles of the jaws has been employed with success. When all fail, tracheotomy must be employed.* Dr. Hamilton has given calomel in repeated and successive doses to children, to the amount of one hundred and eighty grains, with success, and he advises it to be continued until the alvine dejections become green, like spinach.

SPASMODIC CROUP.—SPASMODIC ASTHMA OF CHILDREN.

Croupal respiration may supervene on cerebral diseases, and was designated by Dr. Clarke “a peculiar species of convulsion in infant children.” It is also described by Dr. Cheyne, in his work on Hydrocephalus, “as consisting in a crowing inspiration, with purple complexion, not followed by cough ;” the muscles are rigid, the thumbs clenched in the hands, the extremities are livid and swollen, and general convulsions supervene. It proved fatal in seven cases. Change of air and diet are strongly advised. This disorder occurs during sleep ; the child starts suddenly, the respiration becomes laborious and difficult, the face purple, convulsions supervene, and death is produced by asphyxia. One of the best accounts of this affection is that of Dr. Marsh, in the Dublin Hospital Reports, 1830, v. 5, in which several cases are described under the terms, “A peculiar Convulsive Disease affecting Young Children, which may be termed Spasm of the Glottis.” It was called spasmodic asthma of children by Miller and Parr.

Dr. Ley has given a new view of the pathology of this disease, which he has termed Laryngismus Stridulus. He gives an elaborate account of all the writers who have treated of it, and adds the history of numerous cases which fell under his own care with the morbid appearances. In his opinion, which I believe to be indisputable, the cause of croupal inspiration is a diseased condition of the bronchial and cervical glands, which irritates the eight pair and recurrent nerves. It is remarkable that the author makes no mention of the hydriodates of potass and iron, in this disease, and only employed aperients, tonics, and narcotics. (*An Essay on Laryngismus Stridulus or Croup-like Inspiration of Infants*, 1836.

* Sir James Murray has proposed an improved mode of performing this operation. On laying bare the cartilaginous rings of the trachea, they are raised with a hook, and a lozenge-shaped piece is removed with a scissors or bistoury. Mr. Carmichael has repeatedly performed the operation in this manner, in chronic ulceration of the larynx and laryngitis with success.—*Dublin Medical Journal*, Nov. 1832.

TREATMENT.—Warm bath, cold to the head, while the child is in the bath, venesection, leeches to the larynx, ammoniated liniment to the base of the skull and neck. Change of air and of diet are strongly recommended, and during the violence of the paroxysm, an infusion of five grains of tobacco leaves in six ounces of water was administered with the best effects. The disease occurred in three cases in a newly painted house. Dr. Marsh thinks the disease arises from irritation or vascular congestion at the origin of the pneumogastric or eighth pair of nerves. Dr. Monro, in his *Morbid Anatomy of the Brain*, attests this pathology. The affection is most common in strumous habits. It is confined to the muscles of the larynx, and the treatment consists in improving the general health, and giving tone to the nervous system. The disease is described by Dr. Kellie of Leith; (*Edinb. Med. Journ.*, 1816 :) by Porter on the Pathology of the Larynx and Trachea; *Pretty (Lond. Med. and Phys. Journ.* v. 45) and Richter, *Specielle Therapie*.

“The disease,” says Dr. Marsh, “is essentially different from every form and variety of croup; it is purely a spasmodic affection, and in all its stages is characterised by convulsive movements, partial or universal, and in its earlier stages all its symptoms will be aggravated, if it be confounded in treatment with any inflammatory affection of the larynx or air tubes. I do not find it described in any systematic work in the English or French languages. I have treated numerous cases of this kind, and can also state that some infants have croupal respiration, independently of this affection, or of common croup. I know children of a family affected in this way.] It is probable that a cautious use of hydriodate of potass or iron may be very beneficial.—See *Scrofula* and *Rachitis*.

CYNANCHE PHARYNGÆA.—INFLAMMATION OF THE PHARYNX.

This differs from cynanche tonsillaris in the seat of the inflammation only. It is of the same nature, produced by the same causes, and requires the same treatment. [Sometimes the tonsils are implicated, at other times there is erythema on the faucial mucous membrane, extending to the larynx and causing laryngitis.]

CYNANCHE PAROTIDÆA.—THE MUMPS.

After slight symptoms of inflammatory fever, a swelling of the parotid and maxillary glands appearing externally; respiration and deglutition little impeded; sometimes a metastasis of the inflammation takes place to the breast of the female, and to the testis in the male; and the recession is not unfrequently fol-

lowed by low muttering delirium, [congestion of the brain and death.]

Cause.—Specific contagion [or exposure to cold.]

The treatment will be the same as in cynanche tonsillaris. Emetics are especially beneficial. Should inflammation of the breast or testis supervene, with delirium or stupor, blisters to the neck, sinapisms to the feet, fomentations to the parts affected.—See Synochus, Phrenitis.

PLEURITIS.—INFLAMMATION OF THE PLEURA.

SYMPTOMS.—This disease is generally ushered in with chills, rigors, and the usual symptoms of inflammatory fever, accompanied, or followed, by a sense of weight in the chest, which in a few hours becomes acute pain, referred to the side, about the sixth or seventh rib, and thence lancinating to the sternum or scapula. Cough takes place. The breathing is extremely anxious, and the pain is increased during inspiration; incapacity of lying upon the affected side; frequent, hard, contracted pulse, vibrating under the finger like the tense string of a musical instrument; white tongue, high-coloured urine, and other symptoms of synocha.*

It mostly terminates in a few days by resolution, which is known by a free expectoration, a departure of the pain, and a gradual subsidence of the symptoms; or it produces inflammation of the lungs.

The causes, prognosis, and treatment, are the same as in pneumonitis. [But in some cases venesection, leeching over the seat of pain, and the application of cupping-glasses over the punctures, fail, and then large doses of tartarized antimony (see p. 99) with blisters succeed. In some cases all these remedies do not arrest the disease, and then musk, camphor, and æther have been successful.

In many cases false membranes, or effusion of serum into the chest takes place very rapidly, and then an emetic every third or fourth day, antimonial ointment over the chest, issues, setons, and the treatment for hydrothorax must be employed. Laennec condemns large doses of tartarized antimony in chronic pleuritis. When the chest is distended with serum, paracentesis is indicated, then there is metallic tinkling.

PLEURODYNIA, or muscular pain in the parietes of the chest, is often mistaken for pleuritis. It is unconnected with inflammation, and is merely neuralgic. It is aggravated by inspiration. It is

* Pain acute, respiratory murmur is absent, and there is ego-phony. For a full account of the semeiology, pathology and signs afforded by auscultation and percussion, see my *Manual of Auscultation and Percussion* applied to the physical diagnosis of diseases of the lungs, heart and abdominal viscera.

not attended with fever or cough. It generally yields to anodyne frictions along the course of the intercostal nerves and over the corresponding part of the spine. In some cases a sinapism or blister is necessary, or cupping or leeches previously. It affects nervous, dyspeptic, rheumatic, or gouty subjects. The bowels should be opened, and antispasmodics, and sedatives administered, with counter-irritation over the joint from which there has been a metastasis of rheumatism or gout. Pleurodynia may arise from disease in the spine, chest, abdominal viscera, spleen, especially as in chlorosis, amenorrhœa, and suppression of the menses, and also from syphilis. The treatment must be modified according to the nature of the complication.]

PNEUMONITIS.—INFLAMMATION OF THE LUNG.

The symptoms are first very similar to those of pleuritis, but the pain is more obtuse, more under the sternum, more a sense of weight and oppression; the pulse is not so contracted. The difficulty of breathing is more constant; the face flushed, and sometimes of a purple hue. When it terminates by resolution, it is known by a free expectoration; the breathing becoming free, and all the symptoms gradually vanishing; this generally happens about the fifth or seventh day.

When the symptoms continue with no diminution beyond this period, it mostly induces suppuration; and this is known by severe rigors, the pain becoming more fixed, by a remission of previous febrile symptoms, and the accession of hectic, by the respiration becoming less painful but more oppressed; the patient lying with greater ease on the affected side, and these followed by the subsequent symptoms of empyema or vomica.

When the symptoms of pneumonic inflammation are protracted beyond the seventh day, and no symptoms of suppuration present themselves, the disease not unfrequently terminates by suffocation: prior to which, a sudden remission of fever and pain takes place without preceding rigor; the breathing becomes extremely anxious and laboured; the pulse sinks, the extremities become cold, and death ensues.

For pathology and signs afforded by auscultation and percussion, see my *Manual* already quoted.

CAUSES.—*Remote and predisposing.*—Sanguineous temperament, vigorous and plethoric habit, winter and spring seasons, vicissitudes of temperature, all the causes inducing inflammation, violent exercise of body, or exertions of voice.

Exciting.—All the causes inducing inflammation in general, vicissitudes of temperature, violent exercise of the body, or exertions of voice.

Pathology.—[The solidification of the lung is not followed by

inflammation and gangrene, as some have stated; ecchymoses in other parts seldom causes gangrene. Dr. Graves has ascertained that solidification of the lung may continue for a considerable length of time, without producing any particular symptom. He has known it exist for three years. It does not cause tubercular phthisis, but suppurating pneumonia, which closely resembles that disease, except that there is no diarrhœa. Dr. Graves declared in two instances the disease was of this kind, and not tubercular, and his opinion was proved by the necroscopic phenomena. In scrofulous habits, tubercular phthisis may be induced by suppurating pneumonia. Anything that accelerates the pulmonary circulation in scrofulous persons predisposes to tubercular consumption. On the whole, hæmoptysis is not a necessary cause of consumption, may predispose to, and is often the effect of it.—*Lond. Med. and Surg. Journ.* 1833, vol. i. p. 745.]

DIAGNOSIS.—[Auscultation affords the only test of the existence of this disease.—See p. 38, &c.]

First Stage.—Crepitous râle, sound on percussion, healthy.

Second Stage.—When solidification has occurred, we can perceive no crepitating râle or the respiratory murmur in the affected part. The sound will be dull, but louder or puerile in the healthy part of the organ.

Third Stage.—When pus is formed, there will be the mucous or cavernous râle with pectoriloquism. Inflammation most commonly attacks the inferior lobe of the right lung, and seldom affects both lungs simultaneously.]

From hepatitis.—See Hepatitis.

PROGNOSIS.—*Favourable.*—An early and copious mucous expectoration, or tinged with blood of a florid red colour; spontaneous hæmorrhage from the nose; warm, equable, and free diaphoresis; diarrhœa; the appearance of inflammation on an external part; the urine depositing a sediment.

Unfavourable.—The duration of the disease beyond the fourteenth day, when suppuration or phthisis is to be apprehended; violent symptoms of fever with delirium; no expectoration, or the expectorated matter tinged with blood, or of a dark or black colour; sudden cessation of pain, followed by a change of countenance, and a sinking or irregularity of the pulse; the symptoms indicating suppuration or suffocation.

TREATMENT.—The *indications* are the same with those of the phlegmonia, and their fulfilment is to be attempted thus:

1. By general and local bleeding.

Copious and sudden evacuations of blood from the arm, every four, six, or eight hours, according to the urgency of symptoms; [excessive depletion is highly injurious, and is now replaced by large doses of tartarized antimony.]

Extrahatur sanguis, pleno rivo, ad syncopen vel deliquium animi quamprimum, et repetetur pro re uata.

Admoveantur cucurbitulæ cum scarificatione ad partem thoracis dolentem pro re nata, et exsugatur sanguis ad ζ viii.

[Applicentur hirudines viginti thoracis parti dolenti, et post fluxum sanguinis, admoveatur cucurbitulæ siccæ: dein imponatur emplastrum lyttæ.

Venesection should be repeated as long as the sound of the chest is imperfect, the *râle crépitant* audible, and the respiration laborious or embarrassed. Four or five bleedings may be necessary, provided the stethoscopic signs are our guide, and it is scarcely necessary to state that auscultation should be used daily, to ascertain the condition of the lung and the effect of treatment. There may be fever, though a small portion of the lung is only affected, but we must continue depletion, and even when the catamenia or lochia are present. The pulse may be small and weak at the wrist, though the action of the heart may be full and powerful; and in this case the radial pulsation will become full and soft after venesection. The exploration of the heart enables us to distinguish apparent from real debility in this and other cases. Laennec bled only once to ζ xvi, often omitted this remedy in weak and old subjects, and depended on large doses of tartarized antimony alone.

R. Infusi Foliorum Aurantii ζ iiss; Antimonii Tartarizati gr. i; Syrupi Aurantii ζ iv: Fiat haustus, secundâ quâque hora exhibendus ad sextam vicem vel donec sedantur symptomata.

The majority of British physicians now adopt this practice. Forbes, Southwood Smith, Tweedie, Graves, &c. I employ it generally, and in most cases with success. Dr. Elliotson prefers ipecacuanha to tartarized antimony.—(Clinical Lectures in *London Medical and Surgical Journal*, 1832, vol. ii.) The following is the Italian practice.

R. Aquæ puræ ζ vj; Antim. Tart. gr. xiv; Syrupi Croci ζ ij: Dosis ζ ss secundis horis.

Large doses of tartarized antimony produce vomiting and purging at first, but these effects cease after a few doses. The medicine is contraindicated when there is gastric irritation, and in cases of children.

When the disease advances, the antimony is increased to two grains in each draught, and a drachm of syrup of poppies added. Some persons are vomited and purged by this remedy, and others are effectually relieved without any evacuation. In some cases, copious perspiration is induced. This plan is recommended in all stages of pneumonia, and the mortality under it is calculated at one in twenty-eight. It is now very generally adopted in this country.—See Syuechus with *Pneumonia*, p. 99.

In some cases the disease continues after the employment of all remedies, and under such circumstances the administration of ten or twenty grains of camphor, musk, or castor, during twenty-four hours, the free use of wine, bark, with warm bathing and affusion, remove all the symptoms.—*Martinet*.]

2. By a brisk purge at the commencement, and then by occasional aperients.

The opening medicines prescribed against inflammatory fever are also proper.—See p. 75. Great caution is requisite not to exhibit a drastic purge when the expectoration is going on freely.

3. By nauseating diaphoretics and expectorants.

R. *Liquoris Ammoniae Acetatis* fʒiij; *Aquæ destillatæ* fʒx; *Potassæ Nitratis* gr. viij; *Syrupi Aurantii* fʒj; *Liquoris Antimonii Tartarizati* mxx: *Fiat haustus*.

One of these draughts is to be given every four hours; and, if it fail to produce a perspiration, one of the following pills should be administered with each dose:

R. *Hydrargyri Submuriatis* gr. $\frac{1}{2}$; *Pulveris Jacobi veri* gr. iij; *Pulveris Scillæ* gr. $\frac{1}{4}$; *Conservæ Rosæ Caninæ* gr. iij: *Misce, fiat pilula*.

R. *Pulveris Ipecacuanhæ* gr. j; *Pulveris Antimonialis* gr. iij; *Hydrargyri Submuriatis* gr. $\frac{1}{2}$; *Sacchari purificati* gr. vj: *Fiat pulvis ex syrupo capiendus*.

Should these means neither produce a perspiration nor expectoration, the dose must be increased, and assisted by pediluvium of warm water, or decoction of chamomile-flowers.

The following juleps and emulsions will also tend to promote the same effect, and will palliate the cough.

R. *Aceti Scillæ* fʒj; *Oxymellis ejusdem* fʒvj; *Aquæ Menthæ Viridis* fʒvj: *Misce, cujus sumat æger cochleare unum magnum subinde*.

R. *Aceti communis* fʒjss; *Syrupi Tolutani* fʒj; *Aquæ destillatæ* fʒv; *Vini Antimonii Tartarizati* fʒss: *Misce: cujus sumantur cochlearia duo magna frequenter*.

R. *Potassæ Nitratis* ʒj; *Misturæ Amygdalæ* fʒvj; *Syrupi Rosæ* fʒj: *Misce: sumat cochleare magnum subinde*.

[Half a drachm of nitre may be given in a pint of barley-water, or whey.]

When the violence of febrile action is somewhat abated, and the pulse continues very frequent, digitalis is of great use: it may be added to the common saline draught.

R. *Liquoris Ammoniae Acetatis* fʒiij; *Tincturæ Digitalis* m vj—xx; *Syrupi Rosæ* fʒj; *Aquæ Menthæ Viridis* fʒx: *Fiat haustus quartis horis exhibendus*.

4. By the application of blisters, fomentations, and cataplasms, to the chest.

When the symptoms of suppuration, or effusion, supervene, the strength must be supported,

By farinaceous food, [tous les mois, gruel, barley-water, sago, tapioca, arrow-root,] mixed with mild and dilute wine.

By cordial diaphoretics and bitters.

R. *Ammoniae Carbouatis* ʒss; *Liquoris Ammoniae Acetatis* fʒj;

Misturæ Camphoræ f̄3v; Syrupi Croci f̄3v: Misce: ejus hauriat æger cochlearia tria ordinaria secundâ vel tertiâ quaque horâ.

If the pulse sinks, and cold and partial perspirations appear, and the countenance becomes sunk and cadaverous, æther and camphor will be proper, and wine must be given more liberally, as in the last stage of typhus.—See p. 82.

It sometimes happens that the febrile symptoms soon become typhoid; in such cases large doses of camphor with æther, or ammonia, senega, and serpentaria, have been found useful, and blood-letting prejudicial.

[In describing this disease, it has not been considered unnecessary to notice its three stages, as in p. 265. When pneumonia becomes chronic, we should employ a succession of blisters over the part of the lung affected, or insert an issue or seton, and the patient should avoid all exciting causes, as public speaking, singing, much conversation, too much exercise, riding on horseback, and exposure to cold and damp. His diet should be mild and nutritious, light animal food, puddings, &c.; and he should wear flannel next the skin. Whenever circumstances permit, he should reside in the south of England or France; and when a relapse occurs, the depletory and antimonial remedies already enumerated must be employed. For a full account of this and other diseases of the lung and windpipe, see Stokes on the Diagnosis and Treatment of Diseases of the Chest, 1837.]

ORDER V.

PROFLUVIA.—FLUXES WITH FEVER.

CHARACTER.

Pyrexia, with an increased secretion, not naturally bloody.

GENERA.

CATARRHUS,	OR	CATARRH.
DYSENTERIA,	—	DYSENTERY.

CATARRHUS.—BRONCHITIS.

SPECIES.—1. *Catarrhus a frigore*, common cold.

2. *Catarrhus contagiosus*, the influenza.

An increased secretion of mucus from the mucous membrane of the nose, fauces, and bronchi, attended with pyrexia.

[Bronchitis or catarrh is inflammation of the mucous membrane which lines the bronchi in their whole extent. The term catarrh is usually applied to partial inflammation of the mucous membrane of the nostrils, frontal sinuses, fauces or throat and upper bronchi, and hence called “cold in the head or chest.”]

SYMPTOMS.—Pyrexia; weight and pain in the head; oppression of the chest, and impeded respiration; sense of fulness and stopping up of the nose; watery inflamed eyes; coryza; cold shiverings, succeeded by transient flushes of heat; soreness of the fauces and trachea; cough; pains about the chest; rheumatic pains in the neck and head; increased secretion of mucus from the mucous membrane of the nose, fauces, and bronchi. [It may be acute or chronic, and is designated *pulmonary* when the bronchial mucous membrane is affected. It varies in intensity, and may resemble phthisis pulmonalis, for which it has been often mistaken. The expectoration may be clear, glairy, or viscid; and the more tenacious, the greater is the inflammation. Sometimes the sputa are of different colours, white, greenish, or yellowish, and may be accompanied by night sweats and marasmus. The disease is either dry, humid, or suffocative.]

CUSES.—*Remote*.—Cold applied to the body; contagion.

Proximate.—An inflammation of the mucous membrane of the nose, fauces, bronchi, &c.

PROGNOSIS.—It is seldom attended with danger, when in a mild form, and arising from common causes.

Unfavourable.—Predisposition in the constitution to phthisis; tendency to asthma, or pneumonitis, and in aged persons.

[*Anatomical characters.*—Redness of the tracheal or bronchial mucous membrane to a greater or less extent. This redness is observed most commonly at the termination of the trachea, and in the first *division* of the bronchi. There may be purulent expectoration though the mucous membrane appears perfectly healthy.—*Bayle and Andral.*]

TREATMENT.—*Indications.*—I. To reduce the febrile action of the system.

II. To allay the irritation of the affected parts.

[When the disease is violent or suffocating, then the ramifications of the bronchi are affected, and large doses of tartarized antimony are indispensable.]

General bleeding may be necessary, if the type of the fever is synochal, and the symptoms are violent: in such cases purges will be beneficial, saline diaphoretics, and the antiphlogistic diet, as recommended against synocha, or inflammatory fever. [Leeching or cupping in some cases.]

When the system evinces typhoid actions, the contrary must be observed. [The warm, vapour, or foot bath, at bed-time, with warm punch or negus, is the best remedy in mild cases and in nervous habits.]

The second indication requires,

1. Frequent use of tepid diluents, mucilaginous and oily demulcents, [which allay cough by sheathing the fauces and preventing the contact of the air.]

R. Cetacci ʒij; Ovi unius vitellum, Syrupi Aurantii fʒss; Aquæ Cinnamomi fʒij; Aquæ destillatæ fʒiv: Fiat mistura, cujus capiat æger cochleare magnum frequenter.

R. Olei Amygdalæ fʒvj; Syrupi Tolutani fʒj; Aquæ destillatæ fʒv; Liquoris Potassæ Subcarbonatis q. s: Fiat emulsio, cujus sumantur cochlearia duo secundâ quaque horâ, vel urgenti tusse.

R. Mucilaginis Acaciæ fʒiss; Aquæ Cinnamomi fʒv; Syrupi Mori fʒj: Misce: cujus sit dosis cochleare medium, urgenti tusse sumenda.

Barley-sugar, lozenges, barley-water with capillaire, raspberry vinegar diluted, and the like, are very serviceable.

2. Mild expectorants and diaphoretics.

R. Aceti Scillæ fʒj; Aquæ Menthæ Viridis fʒv; Syrupi Croci fʒj: Misce, cujus sumat cochleare magnum quando rucedo urget.

R. Oxy mellis Scillæ fʒss; Spiritus Etheris Nitrici fʒij; Aquæ Menthæ Viridis fʒv; Syrupi Aurantii fʒij; Fiat mistura, de qua capiat æger cochleare magnum subinde.

R. Potassæ Nitratis ʒj; Misturæ Amygdalæ fʒvij; Tincturæ Scillæ fʒj; Syrupi Tolutani fʒss: Misce: sit dosis cochleare magnum subinde.

3. Mild opiates and diaphoretics, when the inflammatory diathesis is reduced. [Belladonna, syrup of white poppies, and lactucarium are preferred by the French, especially when there is urgent cough without expectoration.

R. Syrupi Papaveris ʒj; Potassæ Nitratis ʒj; Aquæ Menthæ Viridis fʒvj: Fiat Mistura cujus capiat aeger cochleare magnum urgenti tusse.

TREATMENT OF ACUTE BRONCHITIS.—Venesection, cupping on the anterior or posterior surface of the chest, large doses of tartarized antimony or mercurialization, which is preferred by Elliotson.

Asthenic Bronchitis.—Slight cough, little or no pain of chest, sonorous, sibilous or mucous râle; pulse quicker than natural, great prostration of strength. Disease is common to aged persons, who in three days may be in a hopeless condition.

TREATMENT.—Small bleedings, cupping or leeching, emetics, nauseating doses of antimony and quinine during the day without nutritious diet. In general all remedies fail when the patient is seventy years of age, and the season inclement. Hence the fatality of the disease in winter and spring; but especially when influenza is epidemic. Mercurialization is a good remedy, and sometimes succeeds. This was the *peripneumonia notha* of former writers.

Chronic Bronchitis.—Commences as a common cold in the young and middle-aged, and continues a month or two. It returns every winter with increased severity; and reappears in the middle-aged, or old persons, for several years. It is called winter cough, and sometimes asthma. When the mucous membrane secretes freely, and the breathing is difficult, the disease is called humoral asthma. The expectoration may be copious or sparing, and of all characters, even purulent; being sometimes inodorous or extremely fetid. It varies in colour and consistence. In some cases there is dyspnœa or orthopnœa, and great pulmonic congestion. The pulse may be full, or small and feeble, and all the symptoms of hydrothorax may be present. But on applying the ear, we hear the respiration in the lower part of the chest, which could not happen in hydrothorax, when the patient is in the sitting position.

DIAGNOSIS.—There may be all the râles in different parts of the chest, or some may exist at one time and be absent at another. The disease is often confounded with phthisis, but the absence of pectoriloquy determines its nature. It may have all the other symptoms of consumption; and hence when cured, it is said the patient has recovered from phthisis!

Catarrhus Senilis.—Laennec states that when the bronchial mucous membrane is thickened, it secretes a viscid mucus, the sputa being globular, and the respiration spasmodically affected as in asthma. The history of the disease will enable us to distinguish it from spasmodic asthma.

Effects of Bronchitis.—The effects of chronic bronchitis are parr

tial or extensive dilatation of one or several bronchial tubes, the respiratory murmur, or vesicular respiration becomes louder and rougher at the upper part of the sternum and between the scapulæ. The voice re-echoes, and when the stethoscope is applied over the trachea, we hear bronchophony or pectoriloquy. The sensation of this sound may be learned by placing the instrument over the trachea or larynx of healthy adults, when the voice is heard at the end of the stethoscope. When the bronchial tubes are dilated, bronchophony will be heard at a part in which it should not exist; and if dilated so as to form a cavity, pectoriloquy will be evident.

The effects of bronchitis may be diminution or imperviousness of the tubes; or the air cells, which are the fine terminations of the bronchi, may be dilated, constituting the disease improperly denominated emphysema. This is an erroneous use of the term, because it really means the existence of air in the cellular tissue; but no such thing exists in dilatation of the air-cells. These enlarge to the size of a millet or hemp seed, and sometimes to that of a cherry, or they may form a cavity as large as a walnut—a case of which was in St. Thomas's Hospital. Baillie was of opinion that two or three cells might be broken into one; but Laennec has been awarded praise as the discoverer of this fact. Sir John Floyer also described it in a mare, and considered it applicable to the human subject. The cause of dilatation of the air-cells is, according to Laennec, the retention of air in the imperfectly obstructive tubes in chronic bronchitis by a mechanism similar to that of the valves of an air-gun; but this is only an assumption unproved by dissection. Elliotson ascribes it to want of dilatation of the air-cells during inspiration, and to over dilatation of other parts to fill the chest.

Auscultic Signs.—These are, a hollower sound than in health, absence of respiratory murmur, or its being very slight as some air passes and repasses into the cells. In pneumo-thorax the air is stagnant, and consequently there is no respiratory murmur. When the dilatation is extensive the air crackles during inspiration, and this has been called by Laennec *dry crepitous râle with large bubbles*. This is, however, extremely rare.

TREATMENT.—There is no effectual treatment in this disease.

Treatment of Chronic Bronchitis.—This must vary according to the urgency of symptoms. Leeching, cupping, and ipecacuanha emetics administered daily for two or three weeks are necessary. There may be congestion of the lungs with serum in the cellular tissue, œdema of the legs, in fact dropsy; and then squills, digitalis, and calomel are given with advantage.—See Anasarca. Antimony, in repeated doses, causes too much prostration in this disease. Emetics and diuretics, with mild purgatives, are decidedly the best remedies. Excessive purgation is to be avoided, as there is much debility in these cases. The ipecacuanha emetic every

morning or every other morning, both in cases of adults and children, is a powerful means in clearing out the bronchiæ; hyoscyamus, conium, and pulv. ipec. e. are beneficial; though opiates are generally injurious. Dry-cupping and inhalations are highly useful. Warm water may be impregnated with chlorine, iodine, hyoscyamus, or conium, and the vapour inhaled with great relief. One drop of T. of iodine $\mathfrak{z}\text{vj}$ aq. will be sufficient at first. When there is emaciation, tonics are beneficial, especially proper doses of the sulph. ferri, which cures many supposed to have consumption.]

CLASS III.

CACHEXIÆ;

OR,

DISEASES FROM DEPRAVED HABIT.

CHARACTER.

Depraved habit of the whole, or of a great part of the body, without any primary febrile or nervous affection.

ORDERS :

I. MARCORES,	EMACIATIONS.
II. INTUMESCENTIÆ,	SWELLINGS.
III. IMPETIGINES.	

ORDER I.

MARCORES.

The genera of this order are characterised by a wasting of the body.

GENERA.

PHTHISIS,	or	Pulmonary consumption.
TABES,	—	Wasting away with fever.
ATROPHIA,	—	Emaciation without fever.

PHTHISIS.—PULMONARY CONSUMPTION.

SYMPTOMS.—Regular tubercular phthisis usually begins with a short dry cough, so slight as to become habitual before it excites the attention of the patient. The breathing is more easily hurried by bodily motion; the patient becomes languid and indolent, and gradually loses strength; the pulse is small, soft, and quicker than usual; at length, from some fresh exciting cause, the cough becomes more considerable, and is particularly troublesome during the night; the breathing more anxious; sense of straitness and oppression of the chest are experienced; an expectoration takes place, at first of a frothy mucus, and is most considerable in the morning; afterwards becoming more copious, viscid, and opaque.

The breathing becomes more and more difficult; the emaciation and weakness go on increasing; a pain arises in some part of the thorax, at first generally referred to the sternum, but as the disease

advances is felt on one or both sides, is increased by coughing, and sometimes becomes so acute as to prevent the patient from lying upon the affected side.

The face now begins to flush; the pulse becomes quick and hard; the urine is high-coloured, and deposits a branny sediment; the palms of the hands, and soles of the feet, are affected with burning heat; the tongue, from being white, is now preternaturally clean and red; purulent matter is expectorated; all the symptoms are increased towards the evening; the fever assumes the hectic form; having an exacerbation twice in the day; the first about noon, which is inconsiderable, and soon suffers a remission; the other in the evening, which gradually increases until after midnight. Each exacerbation is usually succeeded by chilliness, and terminates in profuse perspiration, and the deposit of a furfuraceous sediment in the urine.

The appetite now often mends, and generally becomes better than in the first stage of the complaint; the sclerotic membrane of the eye assumes a pearly white colour; during the exacerbations, a circumscribed redness appears on each cheek, but at other times the face is pale, and the countenance dejected; food is returned by vomiting; a diarrhœa comes on, and generally alternates with colliquative sweats; the emaciation is extreme; the countenance assumes a cadaverous appearance; the cheeks are prominent; the eyes hollow and languid; the hair falls off; the nails are of a livid colour, and much incurvated; the legs swell, and are œdematous; aphthæ appear in the throat; still the appetite often remains entire, and the patient flatters himself with the hopes of speedy recovery, and is often vainly forming distant projects of interest or amusement, when death puts a period to his existence.

CAUSES.—*Predisposing.*—Hereditary predisposition; particular formation of the body; marked by long neck, prominent shoulders, narrow chest, and long slender fingers; the sanguineous temperament; constitutional irritability of the lungs; sedentary life; the scrofulous diathesis; indicated by a fine clear skin, fair hair, delicate rosy complexion, large veins, thick upper lip, weak voice, and great sensibility.

Exciting.—Certain preceding diseases; as hæmoptysis, pneumonia, catarrh, asthma, scrofula, syphilis, variola, rubecula. The dust to which certain artificers are exposed; as needle-pointers, stone-cutters, millers, &c. The fumes of certain metals or minerals; violent and depressing passions of the mind, as grief, disappointment, anxiety; intemperance of any kind; profuse evacuations, as diarrhœa, diabetes, fluor albus, menorrhagia; continuing to suckle too long under a debilitated state; the application of cold united to moisture; as the lying in damp beds, sudden exposure to cold when the body is preternaturally warm, especially if made so by previous exertion.

Proximate.—The formation of tubercles, which inflame, suppurate, and become [vomicae, abscesses and] ulcers, communicating with the bronchi.

DIAGNOSIS.—The infallible characteristics of confirmed phthisis are the hectic fever, with its peculiar concomitants above described; the purulent expectoration; from which we infer an ulcerated state of the lungs. [Hectic fever is not an infallible sign of phthisis: recovery may happen though this be present.]

Distinction between Pus and Mucus.

The former is opaque, friable, easily miscible with water, of a fœtid odour, of greater specific gravity than water, sinking to the bottom of the vessel containing this fluid.

Its colour is either white, yellow, or green; when dissolved in sulphuric acid, if water be added, it either falls to the bottom, or forms an intimate mixture; making the whole uniformly turbid.

The latter is transparent, viscid, not miscible with water, inodorous; upon adding water to its solution in sulphuric acid, it separates into flocculi, and floats upon the surface.

A sputum, which answers to all the characters of pus, is occasionally expectorated from an inflamed state of the mucous membrane of the air passages, and from other conditions, not attended by ulceration. To ascertain whether ulceration exists, M. Laennec, an ingenious, experienced, and skilful physician of Paris, has invented an instrument, by the application of which to the thorax, he can tell whether the lungs are ulcerated or not. This instrument he calls *stethoscope*. M. Laennec considers a peculiar sound of the voice as indicative of an ulcerated or preternatural cavity in the lungs, which he calls *pectoriloquism*. The sputa are tenacious and ropy—not always purulent—bronchial and cavernous respiration—bronchophony.

PROGNOSIS.—Circumstances more especially *unfavourable* are, the disease arising in consequence of hereditary predisposition; from tubercles; high degree of hectic fever; great emaciation and debility; a morbidly clean or fiery red tongue; fixed pain in the chest; colliquative sweats; expectoration of pure pus; œdema of the legs; diarrhœa; aphthæ. [Sore throat, anomalous symptoms in every part of the body.]

TREATMENT.—*Indications.*—To lessen inflammation in the inflammatory stage; and to promote the healing of ulcers after suppuration has taken place.

1. By small and repeated bleedings; regulated by the strength of the patient and the period of the disease, unless the disease bear more evident marks of a serofulous tendency.

2. Gentle laxatives, of cassia, manna, Rochelle salt, &c.

3. Mild diaphoretics, of the liquor acetatis ammoniæ, or pulvis ipecacuanhæ compositus.

4. The occasional exhibition of an emetic : the sulphate of zinc is preferred ; and the sulphate of copper is recommended by Senter, in the Transactions of the College of Philadelphia ; and by Adair, in the Medical Commentaries.

5. Sponging the chest daily with dilute acetic acid, in the proportion of one part acid to three of water.

6. Blisters, issues, or setons, [or antimonial pustulation,] opposite to the part affected with pain, are sometimes serviceable.

7. Nitre, in small and frequent doses.

8. Inhaling the vapour of hot water, alone, or impregnated with æther, conium, nicotiana, digitalis, stramonium, [iodine or chlorine.]

9. By inhaling certain factitious airs : Dr. Beddoes, and other pneumatic physicians, recommend dilute hydrogen, and hydrocarbonate ; but these, like the other remedies, are seldom beneficial.]

10. Inhaling the vapour of tar ; first suggested by Mudge in his Treatise on the Inhalation of Steam, and lately introduced by Crichton, Lazaretto, Hufeland, Neüman. The best way of using it is to boil some tar, such as is used for the navy and by cable manufacturers, for a few minutes in the open air, and then to add from one to two ounces of subcarbonate of potass, dissolved in a little water, to each pound, and to place this mixture over a spirit lamp in the sick room, keeping up a heat which disengages the volatile part of the tar. If a white vapour arises, the heat is too strong or the tar impure. The air of the chamber soon becomes impregnated with the vapour of the tar, which is invisible. This process should be repeated two or three times a-day for half an hour each time, taking care not to alter that temperament of the room which is best for the patient. The same tar may be used until it becomes thick.

[M. Gannal, of Paris, has related several cases of well marked consumption which were cured by the inhalation of chlorine gas ; (see his work translated by Potter;) and Sir J. Murray, of Dublin, had proposed iodine vapour in 1829, and Sir Charles Scudamore in 1830. The latter is useless, the former affords benefit, but sometimes fails. One drop of the tinct. of iodine in $\overline{5}$ vj aq. hyoseyamus, conium, tar, hydrocyanic acid, or vinegar, may be mixed with warm water for inhalation.

Were it possible to detect tubercles before suppuration, it is extremely probable that iodine might produce their absorption as it does of an immense number of glandular and other tumours. But when the lung is studded with vomice or abscesses, and those unbroken, it can scarcely be expected that any vapour will effect a cure. Pneumatic medicines are unjustly depreciated, though their application is direct to the bronchial mucous membrane.]

11. Conium ; beginning with small doses, and gradually increasing it.

12. By *digitalis*; in the praise of which Drs. Beddoes, Drake, Fowler, and others have written. It is sometimes serviceable, more frequently otherwise. The tincture is the best preparation; the dose should be small at first, from five to ten minims, and it should be gradually increased until it reduce the energy and frequency of the pulse.

13. Tonics and chalybeates have been administered with advantage; particularly myrrh alone, or with sulphate of iron: the *mistura ferri composita*.

14. The *phellandrium aquaticum* is praised by Drs. Hertz and Michaelis, in Hufeland's Journal.

15. The *agaricus piperatus* and *deliciosus*, by Dr. Dufresnoy.

16. Colliquative sweats should be checked by vegetable and mineral acids. [The sulphuric aromatic acid, muriated tincture of iron, and the *tinctura styptica* are the best.]

17. Diarrhœa, by the *mistura cretæ cum opio*; *resina acaroidis*; or by diaphoretics.—See Diarrhœa.

18. The cough, by opiates [hydrocyanic acid, hyoseyamus, conium,] especially the *syrupus papaveris*; and by demulcents.—See Catarrhus.

19. A light and nutritive diet, [so as not to cause excitement,] the farinaceous vegetables: milk, especially that of the ass; acescent fruits; the *lichen islandicus*, or Carrageen moss, boiled with milk; the different kinds of shell fish; are most esteemed for the general diet. [Life will be prolonged by nutritious aliment.]

20. Removal to a warm climate; to Lisbon, to Madeira, to the south of France, or to the more temperate parts of our own country. Moderate exercise, either by swinging, on horseback, or by sailing; carefully guarding against a suppression of cutaneous perspiration, in consequence of the application of cold, by constantly wearing flannel next to the skin; a sea voyage: Bristol and Seltzer waters; stabling with cows. [Laennec, Stokes, and others, maintain that consumption is curable when the disease is confined to a single spot in the lung. Autopsies have shown cicatrization where the stethoscope had previously detected cavities. Phthisical persons should avoid loud speaking, playing on wind instruments, and crowded assemblies.]

All the functions decline on account of the defective arterialization of the blood in the lungs, and unless white meats, jellies, and light nutritive aliment be allowed, the patient will sink rapidly. This failure of the functions accounts for the suppression of the catamenia, which is the effect and not the cause of the disease, as women generally imagine. Emmenagogues fail to produce effect. Sometimes we discover pulmonary congestion, when a small bleeding or leeching must be employed. Quinine is advised by Martinet when hectic is present, and a friend assures the writer that colliquative sweats are arrested by an old remedy, the *tinctura styptica*, composed of \overline{zj} of calcined sulphate of iron and two pints

of French brandy. Dr. Armstrong spoke in favour of severe counter-irritation on the chest. In some cases this is prejudicial, and produces much constitutional disturbance.]

TABES AND ATROPHIA.

Both these genera are characterised by wasting away of the body. The distinction between them is, that in tabes there is hectic fever, which does not accompany atrophía; both are symptomatic of some internal disease, which in children is generally obstructed mesenteric glands, from scrofula or overloaded bowels; these require the medicines which are recommended for scrofula and constipation.

Atrophy sometimes occurs in adults and in old age, when no internal disease can be detected. In such cases, the following plans may be resorted to.

1. A course of sarsaparilla: the simple decoction should be given in the dose of a pint daily for a month or six weeks, when its strength should be increased for as long a period. A vegetable and milk diet assists this medicine.

2. Sarsaparilla and bitter-sweet. Some instances of atrophy have been cured by this compound, which seemed connected with the sudden disappearance of an eruption from the skin that had existed many years.

R. Stipium Dulcamaræ Recentium Concisarum $\tilde{\text{z}}$ iss; Decocti Sarsaparillæ Oj; Coque per quadrantem horæ, dein cola. Sumat æger cochlearia octo ter quotidie.

3. Bitters and tonics, with ammonia: when the wasting away appears connected with imperfect or impaired digestion, this class of remedies should be tried. The best formulæ are given under the head of Dyspepsia.

4. Mercurial alteratives:—Plummer's alterative pill, or the pilula submuriatis hydrargyri, every night; or two or three grains of the pilula hydrargyri, or the hydrargyrum cum creta, in small doses. [I have generally found iodine very efficacious in this disease in children.—See Scrofula.]

ASTHMA.

SPECIES.—*Asthma spontaneum*; without manifest cause, or being accompanied by any other disease.

Asthma exanthematicum; from eruption, or other acrid effusion being repelled.

Asthma plethoricum; from the suppression of any usual evacuation of blood, or from spontaneous plethora.

SYMPTOMS.—The attack is usually preceded by sense of fulness about the stomach, lassitude, depression of spirits, drowsiness, and pain in the head; little, however, regarded by the patient. On the

approach of the succeeding evening, a sense of tightness and stricture is perceived across the breast, with distressing straitness of the lungs, impeding respiration. The difficulty of breathing continues to increase for some length of time ; both inspiration and expiration are performed slowly and with a wheezing noise ; the speech becomes difficult and uneasy ; a propensity to coughing succeeds, followed by the most anxious difficulty of breathing ; the patient is threatened with immediate suffocation, and is obliged instantly to rise from an horizontal position ; the face is sometimes turgid, and of a livid hue ; at others it is morbidly pale and shrunk. These symptoms usually continue till towards the approach of morning, when a copious expectoration of mucus comes on, the breathing becomes less laborious and more full, the patient speaks and coughs with greater ease, and, feeling every way relieved, soon falls asleep. The dyspnœa and tightness across the chest remain for some days after the attack, and for several succeeding evenings an exacerbation occurs similar to that above described.

CAUSES.—Hereditary predisposition ; cold and moist atmosphere ; sudden changes of temperature ; retrocedent gout ; suppression of long-accustomed evacuations ; intense study ; certain fevers ; irritation of the bronchial system by ærial acrimony, or other causes ; irritation of the stomach, uterus, or other viscera ; repression of eruptions ; healing of old ulcers.

Proximate cause.—Supposed to be spasm by Willis, Hoffman, Laennec, Williams, Dr. Cullen ; the presence of irritating causes according to Dr. Bree ; [and emphysema and other diseases of the lungs, according to others ; but the disease is generally nervous, when there are intervals of healthy respiration.]

DIAGNOSIS.—The pathognomonic symptoms are, paroxysms generally coming on at night, in which there is frequent and extremely anxious respiration ; together with a wheezing noise, and sense of tightness across the chest.

PROGNOSIS.—*Favourable.*—The disease occurring in an early period of life, and in an unimpaired constitution. Arising from accidental causes, it is more easy of cure than when spontaneous, or the consequence of predisposition.

Unfavourable.—The disease coming on at an advanced period of life ; frequent return of paroxysms, and their long continuance ; symptoms indicating a tendency to phthisis pulmonalis, or to hydrothorax ; anasarcous swellings of the lower extremities ; paralysis of the arms ; tremulous respiration ; weak, irregular pulse ; syncope ; palpitation of the heart ; paucity of urine ; cold extremities. It sometimes has induced an aneurism of the heart and large vessels ; and not unfrequently terminates in pneumonia.

TREATMENT.—*Indications.*—I. To moderate the violence of the paroxysm.

II. To prevent its recurrence.

The violence of the paroxysm is moderated by,

1. Bleeding, where the habit is plethoric, the disease of no long standing, the face flushed, &c.—On the contrary, in elderly persons, where the disease has become habitual, or where the face during the attack is preternaturally pale and shrunk, bleeding is inadmissible.

It must be remembered, however, that the propriety of blood-letting in any species of asthma has been much doubted; and in those cases which appear to demand it, it is better to take away small quantities at intervals, in order to allow the contractile power of the vessels to be exerted in proportion as the vessel loses its contents. [It must be used when there is extreme difficulty of respiration.

Artificial inflation of air, by means of a pair of bellows, affords great relief in the paroxysm. There should be free admission of air, the dress loosened on the neck and chest. Galvanism has afforded immediate relief in several recent cases at the Hôtel Dieu of Paris; and also in the practice of Dr. Wilson Philip.]

2. Gentle aperients, especially such as are recommended to obviate costiveness in dyspepsia; and antispasmodic clysters.

R. *Misturæ Assafœtidæ* ℥viiij: *Fiat enema pro re nata adhibendum.*

3. The application of blisters [and counter-irritants] to the chest.

4. Antispasmodics:—opium, sulphuric æther, or both united; assafœtida, in cases where spasmodic difficulty of breathing is obvious; [hyoscyamus, belladonna, colchicum, valerian, quinine, colnium, prussic acid, lactucarium, balsams, &c. &c.

Sir James Murray, of Dublin, and Sir Charles Scudamore, of London, advise the inhalation of iodine vapour, and Gannal, of Paris, chlorine gas. I have often tried both without success.]

The smoking of stramonium has lately been very generally practised, in some cases with advantage; tobacco is also occasionally serviceable. [The lobelia inflata or Indian tobacco is one of the best remedies. Its dose is from ℥ss to ℥ij of the tincture, and the proportions in this formula are ℥i to Oss.]

5. Expectorants, where expectoration is difficult, of squills, tartarized antimony, and ammoniacum; *tinctura nicotiana*, in nauseating doses.

6. Pediluvium, and the warm bath. [Cold bathing has been recommended by Cælius Aurelianus, Floyer, Withers, Millar, Ryan, Bree, Hufeland, and Coplaud. I have known a gentleman who completely cured himself by affusing cold water on his head every morning.]

7. Coffee.

The recurrence of the paroxysm is prevented,

1. By avoiding the exciting causes.

2. By issues, or occasional blisters.

3. Gentle aperients of rhubarb, with bitters.

5. Emetics, given a short time before the expected paroxysm, have in some instances prevented its attack.

5. Diaphoretics, particularly the pulvis ipecacuanhæ compositus.

6. Expectorants ; as squills, ammoniacum, myrrh, antimonium tartarizatum, a decoction of senega.

7. Opium combined with a diaphoretic.

8. Digitalis ; which, combined with myrrh, checks an excessive secretion from the lungs.

9. Oxygen gas.

10. Inhaling the vapour of æther, [iodine, chlorine.]

11. The smoking and chewing of tobacco.

12. The occasional use of stomachic bitters and absorbents ; Peruvian bark, chalybeate waters, and other remedies recommended for dyspepsia.—The flatulence accompanying asthma is often relieved by a small portion of acetic acid.

13. Light and nutritive diet ; avoiding flatulent and indigestible aliment.

14. Warm clothing ; especially flannel next the skin.

15. Regular exercise ; on horseback, or by swinging or sailing.

16. Removal from a cold to a warm climate, or the one which is found to agree the best with the patient. [When the disease is caused by the repression of an eruption, we should irritate the part primarily affected. In one case, a gentleman became asthmatic in consequence of having an eruption on his leg suddenly removed. He was troubled with asthma for thirty years, but having received an injury on the leg, ulceration followed, and he was completely cured of his complaint.]

PERTUSSIS.—HOOPING-COUGH.

SYMPTOMS.—The disease comes on with slight difficulty of breathing, thirst, quick pulse, hoarseness, cough, and all the symptoms of common catarrh. In the second or in the third week after the attack, it puts on its peculiar and characteristic symptoms.—The expiratory motions, peculiar to coughing, are made with more rapidity and violence than usual ; and after several of these expirations thus convulsively made, a sudden and full inspiration succeeds, in which, by the air rushing through the glottis with unusual velocity, a peculiar sound is caused, which has obtained the name of hoop.—When this sonorous inspiration has happened, the convulsive coughing is again renewed, and continues in the same manner as before, till a quantity of mucus is thrown up from the lungs, or the contents of the stomach are evacuated by vomiting, which generally terminates the fit : the patient is then most frequently enabled to return to the amusement he was employed in before its accession, and often expresses a desire for food : but when the attack has been severe, it is succeeded by much fatigue, hurried re-

spiration, and general languor and debility.—After a longer or shorter continuance of the disease, the paroxysms become less severe, and at length entirely cease.—In some instances it has, however, been protracted for several months, and even for a year.

CAUSES.—Children are most commonly the subjects of the disease; and it is supposed to depend on a specific contagion; [and at first is a nervous disorder, but may be followed by pulmonary or cerebral congestion, or inflammation.]

DIAGNOSIS.—It is distinguished from every other disease by the convulsive cough, followed by the peculiar sonorous inspiration above described; and terminating in vomiting or expectoration.

PROGNOSIS.—*Favourable.*—Moderate and free expectoration; the strength little impaired; the fits neither frequent nor violent; in the interval, the respiration free; the appetite good; the absence of fever; moderate hæmorrhage from the nose.

Unfavourable.—The disease occurring in children under two years of age; in children born of phthisical or asthmatic parents; much fever, with symptoms of pneumonitis; very copious or scanty expectoration; great debility; convulsions; [or coma.]

TREATMENT.—*Indications.*—I. In the early stage of the disease, to moderate its violence, and to palliate urgent symptoms.

II. In the advanced period, to interrupt its course, and put a stop to the disease sooner than it would have spontaneously ceased.

The first indication is to be effected by,

1. Bleeding; if there be much inflammatory pyrexia, or great difficulty of breathing, especially by leeches to the chest.

2. Emetics and nauseating medicines; of ipecacuanha and antimony, in divided doses, [according to the age and strength of the patient.]

R. Vini Antimonii $\overline{3}$ ij Fiat haustus emeticus.

R. Vini Ipecacuanhæ $f\overline{3}$ ss Fiat haustus emeticus.

R. Liquoris Antimonii Tartarizati $f\overline{3}$ ij; Liquoris Ammoniacæ Acetatis $f\overline{3}$ ij; Aquæ Menthæ Viridis $f\overline{3}$ vss; Oxy mellis $\overline{3}$ ss: Misce; cujus capiat æger cochleare unum magnum quartis vel sextis horis.

R. Aceti Scillæ $\overline{3}$ ij; Oxy mellis $\overline{3}$ ij: Misce; cujus sit dosis cochleare minimum subinde.

R. Extracti Conii gr. j—iv: Fiat pilula quavis nocte sumenda.

3. Gentle laxatives of senna, manna, and the like.

4. Blisters, [or antimonial ointment to the chest or abdomen, (Autenrieth,) but it must be used sparingly in children, whom it has destroyed by irritation or poisoning. Friction of the surface contributes much to the restoration of the entaneous function.]

5. Inhaling the steam of hot water; alone, or medicated with æther, conium, poppy, hyoscyamus, [iodine, or chlorine.]

6. Tepid bath; pediluvium.

7. Tinctura cantharidis; alone, or united with tinctura opii camphorata; and so administered as to produce a slight degree of strangury. [This is highly extolled by Graves and Beatty, of Dublin.—*Dublin Journal of Medical Science*, 1832.]

The second indication is to be fulfilled,

1. By tonics ; Peruvian bark ; preparations of steel and zinc ; arsenic, proportioning the dose to the age of the patient. [When the disease is intermittent, quinine is indicated.]

In violent cases, the chest should be frequently examined with the stethoscope. When the brain is affected, we should employ the treatment described in phrenitis and meningitis.]

2. Antispasmodics ; opium ; musk ; assafoetida ; amber ; castor. administered in like manner.

3. Narcotics ; as conium, hyoscyamus, aconitum, belladonna, digitalis, acidum hydrocyanicum.

A grain of the extract of conium and hyoscyamus may be given every six hours, and a quarter of a grain of the others, and gradually and cautiously increased.

The prussic or hydrocyanic acid is a very uncertain medicine. The dose is [half a] drop to a child four years of age, every six [or eight] hours.

4. By antispasmodics, applied externally.

R. Olei Macis $\overline{5}$ jss ; Cerati Saponis $\overline{5}$ ij : Fiat emplastrum pectori applicandum.

R. Extracti Opii $\overline{5}$ ss ; Cerati Saponis $\overline{5}$ ij : Fiat emplastrum pectori imponendum.

R. Olei Succini Rectificati $f\overline{5}$ j ; Linimenti Saponis Compositi $f\overline{5}$ x : Fiat embrocatio, cujus illinatur cochleare minimum ter in die in dorsum.

[This last is analogous to a popular remedy,—Roche's royal embrocation.]

5. Change of air [is highly beneficial.]

[Correct the acidity of the stomach by soda, potass, magnesia, or liquor calcis. The clothing should be warm.]

[Hooping-cough is a disorder of function in the first instance, which is proved by the recoveries of most children without general or local bleeding. I generally find the internal and external use of sedatives effectual. These applied to the pneumogastric nerves through the stomach, and to the facial, nuchal, and dorsal nerves by friction, speedily cure the disease.

R. Mucilag. Acaciae $\overline{5}$ ss ; Syrupi Simplicis $\overline{5}$ j ; Vini Ipecac. $\overline{5}$ j ; Acidi Hydrocyanici $m\overline{j}$ —ij ; Syrupi Papaveris $\overline{5}$ j ; T. Opii Camphor. $m\overline{x}$ —xxx : Dosis $\overline{5}$ j, 3, 4 in die.

R. Olei Camphorat. $\overline{5}$ iv ; T. Opii $\overline{5}$ ij—iv : Misce.

The cheeks, back of the neck, dorsal spine, back, sides, and front of the chest, are to be rubbed with this liniment morning and evening.

This plan is generally effectual in a few days, and the embrocation is often preferred by mothers.]

DISEASES OF THE DIGESTIVE ORGANS.

[DISEASES OF THE MOUTH.]

Congestion of blood in the buccal mucous membrane, including the whole surfaces of the cheeks, tongue, and fauces, (throat,) has been observed by M. Billard in new-born infants. This able author gives the following description of the diseases of the mouth, which is so accurate that I shall translate it; as it is the best account of this portion of pathology which I have seen. Among the inflammations of the alimentary canal, he places those of the mouth in the following order:—

Stomatitis.—Inflammation of the Mouth.—It is impossible to give a general description of stomatitis, because each of the tissues which enter into the conformation of the parietes or walls of the mouth, may become the special seat of inflammation. Disease in each tissue presents peculiar symptoms, so that the symptomatology is different. I shall, therefore, successively describe the following varieties of stomatitis:—

- Stomatitis erythematous,
- with alteration of secretion, (*muguet*),
- follicular, (*aphthæ*),
- ulcerous,
- gangrenous, (*gangrene of the mouth*).

1. *Erythematous Stomatitis.*—The congested state of the lining membrane of the mouth in new-born infants disposes it to become the seat of erythematous stomatitis, which is generally characterised by redness, heat, and sometimes dryness of the mouth and tongue. It often co-exists with inflammation of the stomach and bowels, and is rarely accompanied by fever in very young infants, though this symptom is common to infants from the seventh to the ninth month. This inflammation is sometimes confined to a part, or extends to the whole mouth, and even to the lips, which swell, excoriate, and sometimes become the seat of *herpes labialis*. When the disease persists for a long time, it often causes profuse salivation, especially in infants under the seventh month. In such cases the flow of saliva is often very abundant.

TREATMENT.—Simple erythematous stomatitis readily yields to emollient gargles and a milk diet; and when it is complicated with inflammation of the stomach and bowels, (gastro-enteritis,) it disappears by the remedies which remove such inflammation.

It is always to be recollected that the mouth is the commencement of the digestive organs, and that inflammation in any part of the tissues that compose it, may extend along the œsophagus into the stomach and bowels.

2. *Stomatitis, with alteration of Secretion—Muguet—Millet.*—This species is often confounded with another, aphthæ, or thrush, though very easily distinguished from it. Muguet presents three different aspects; 1, in the form of very small white points spread over the tongue and inside of the mouth; 2, in the form of larger or smaller patches; 3, in the form of a membrane, which covers the entire tongue and inside of the mouth. Sometimes the points or patches are yellow or reddish, which colour is caused by the contact of bile or a sanguineous exhalation from the mucous membrane affected.

The pointed, creamy, and membraniform excretion, is generally preceded by erythematous inflammation of the surface of the tongue, or the lining of the mouth. When this inflammation continues one, two, or three days, we observe on the sides of the tongue and lips small white points or papillæ, which cover those of the membrane, to which they adhere. M. Billard has most carefully examined such excretions, and never found them under the epithelium, the surface of which is always their seat. They surmount the membrane, they cover it like mucus, and muguet is really a morbid secretion.

This is the first form of the disease, and is always preceded by inflammation of the mouth. If the inflammation stops, if the secretion which accompanies it is suspended, the little white spots disappear, and the disease is considered *distinct* or *benign*. But the inflammation very often advances, the white spots unite and form a large patch, either on the surface of the tongue, lips, or cheeks, or covers the whole lining of the mouth. These patches become thick, exfoliate, or detach themselves, leaving the surface inflamed, which secretes materials of a new concretion, or the inflammation ceases. When the whole of the mouth and palate is covered with membrane the muguet is termed *confluent* or *malign*. The papillary muguet usually occupies the tip and sides of the tongue, the muguet with patches is seen on the internal surface of the lips and cheeks, and the membraniform species of the disease is situated on the base of the tongue and palate. We can explain the causes of these different forms or aspects of the disease. The papillary muguet is situated at the tip of the tongue, or rather on its numerous papillæ, which secrete drops of mucosity, and speedily concrete or harden. As the papillæ and villousities of the buccal mucous membrane are larger on the palate, base of the tongue, and on the cheeks, the mucus is secreted in a sheet or layer, concretes in the same manner, and assumes the membraniform appearance above mentioned.

We shall now inquire into the nature, causes, symptoms, complications, and treatment of muguet, or stomatitis with alteration of secretion.

The disease is most common to infants; it may extend along the whole alimentary canal from the mouth to the anus, and also into

the lungs and along all the mucous membranes. The mucus is more tenacious or adhesive than usual, similar to what we observe in chronic bronchitis, or winter cough of aged persons. The disease is sometimes seen in adults. Infants at the breast are more subject to it than those of a more advanced age. Perhaps there is something in the constitution of very young infants which predisposes them to this modification of inflammation. It is most common to delicate infants who are crowded in the same place, and to those who are improperly fed with artificial food, or deteriorated breast-milk. The disease is more frequent in France than in England, and it equally prevails at all seasons.

M. Billard, who investigated the disease better than any of his predecessors, informs us, that it always prevailed with an equal degree of intensity at the Foundling Hospital of Paris, (*Hospice des Enfants Trouvés*.) Thus, during the quarter ending in January 1826, he observed out of 290 patients, thirty-four cases of muguet; in the April quarter, out of 235, thirty-five; in the July quarter, out of 213, one hundred and one; and in the October quarter, out of 189, forty-eight.

The disease does not appear to be contagious, as MM. Baron and Billard have frequently observed healthful infants drinking from the same cup as the diseased, without contracting the disease. From all that has been stated, we may conclude, that the causes of muguet are;—early infancy, bad alimentation, the congregation of a great number of infants in the same place, debility, inflammation of the buccal mucous membrane, and finally, the disposition which mucous membranes of infants present, when inflamed, to become covered with creamy and membraniform conerctions.

SYMPTOMS.—When the disease is mild or partial, there is scarcely any fever; but in the severe forms, the skin is hot and dry, thirst is urgent; and the pulse frequent; that is to say, fever is present. This is particularly the case when the disease extends to the stomach and bowels; or along the mucous membrane of the windpipe to the lungs. The voice and cry of the infant are affected when the palate, tonsils, larynx, and trachea are implicated. The voice is hoarse, and the cry dull in some cases.

It appears by the statements of M. Billard, that muguet of the mouth is often complicated with other inflammations. He found, out of fifty cases of muguet of the mouth in infants who died of the disease, two were affected with inflammation of the cerebro-spinal apparatus, four with inflammation of the skin, twelve with inflammation of the respiratory and circulatory system, and in thirty-two, the digestive apparatus was inflamed. It follows from these facts that inflammation of the digestive apparatus is the most frequent complication of muguet, whilst the other inflammations are merely accidental. This conclusion is also confirmed by the fact, of the strong sympathy between the mouth and other parts of the digestive organs. Among the thirty-two cases in which the digestive organs

were inflamed, there were ten in which the stomach was free from disease; in six the large intestines, and in four the small, were more or less inflamed. As to the other twenty-two, they presented inflammation of the œsophagus or gullet, of the stomach, and of some portion of the small or large intestines.

TREATMENT.—When muguet is simple, distinct, or benign, the mouth should be washed frequently in the day with a piece of charpie or lint wetted with gum-water. The bowels should be regulated. M. Guersent employs a mucilaginous decoction with a fourth part of Labarraque's solution of the chloride of lime to wash the mouth of the infant; and he prefers this to solutions of borax and sulphate of zinc. He thinks it equally preferable in lavement to lime water, which often irritates the intestines.—(*Dict. de Med. in 21 vols., art. Muguet.*) If this plan fails, we may use gargles with alum. All gargles should be sweetened.

When the disease is confluent or complicated, (*black thrush*,) with inflammation of the digestive tube, or any other important organ, it should be combated with the proper means for such concomitant malady. This also applies to buccal and gingival inflammations, or those of the cheeks and gums. These form more or less abundant concretions, which cover the whitish or yellowish pellicles, the gums, and internal surface of the cheeks. Many authors have described this inflammation under the name of aphthæ, others have termed it pelliculous, creamous, stomaceous inflammation, &c. All these varieties ought to be referred to stomatitis, with alteration of secretion, and should be treated by the same therapeutic means. The pathology of aphthæ will prove the difference between the diseases.

3. *Stomatitis folliculosus.*—*Aphthæ.*—*Thrush.*—Pathologists have long disputed about the nature of this disease. It would occupy too much time to enumerate the different conclusions in the works on this subject; and it is sufficient, in my opinion, to describe the modern.

Bichat, whose genius has revealed all the advantages that can be derived from the study of the anatomical characters of diseases to establish exactly their differences and their analogies, has asked the following questions, in terminating his chapter on the mucous chorion. “Are aphthæ an affection of the mucous chorion? Do they belong to the papillæ? Are they seated in the glands? Are they an isolated inflammation of the glands, whilst catarrhs are characterised by a general inflammation of so considerable an extent as the mucous system? All these questions deserve to be examined; M. Pinel has felt the void of pathological anatomy on this point.” (*Anat. Gen. Tome iv.*)

M. Billard has answered all these questions, and has demonstrated that aphthæ consist in an inflammation of the muciparous follicles of the mouth.

“The muciparous follicles,” says that lamented pathologist, “of

the buccal mucous membrane, are invisible in an ordinary state, remain hidden in the substance of the membrane, and supply, by their infinity of number, the smallness of their size ; but when they are inflamed, engorged, and tumefied, they appear upon the internal surface of the lips and cheeks, on the pillars and vault of the palate, or on the inferior and lateral parts of the base of the tongue, in the form of small white specks or points, offering sometimes a coloured spot in the centre, slightly prominent, and often surrounded by a very slight inflammatory circle. These follicles are either isolated and less numerous, or multiplied and spread on all parts of the month. They can sometimes be felt with the finger before they can be distinctly seen. They are often not confined to the month, but extend into the œsophagus, stomach, and intestinal tube." (*Traité des Maladies des Enfants*, 1833.) The inflammation of the follicles may be very slight, and continue for some time without inducing any serious disease, or they may undergo the following alterations :—

The follicular spots may enlarge and preserve the primitive round form, they may soften in the centre, and give out a white or puriform matter. This is the second stage or ulcerated period of aphthæ. The elevated points are not tubercles, vesicles, or pustules, as authors have alleged ; but, according to M. Billard, they are evidently the muciparous follicles, as their seat, constant form, and central orifice demonstrate. They are perfectly analogous to those which we see in the stomach, small intestines, the cæcum, and colon. " If this be the case," says Billard, " why doubt that the ulceration of these follicles is not the result of their inflammation ? What reason is opposed to consider aphthæ as an inflammation of the muciparous follicles of the buccal cavity, since nobody doubts at present that the round ulcers of the small and large intestines are consecutive on inflammation in the glands of those parts, and which have the greatest analogy with those of the mouth ?"

When an inflamed follicle bursts, it is no longer prominent ; it is a superficial round ulcer, with its edges tumefied, and almost always surrounded by an inflammatory circle. It often happens that the centre and edges of this slight ulceration secrete a pultaceous, whitish matter, adherent like a crust, which is sooner or later detached, and falls into the saliva of the infant.

Isolated aphthæ are generally situated on the internal surface of the lower lip, the frænum, or bridle of the tongue, the internal surface of the cheeks, and upper parts of the gums, when the teeth have not pierced them.

If aphthæ are numerous and contiguous, their edges approximate, the creamy matter they excrete extends from one to the other, and forms a layer, more or less extensive, and more or less thick. It is in this case that aphthæ may be confounded with muguet, but we can always distinguish them, on recollecting the history of the development of the inflamed follicles, and a solution of continuity

or breach of surface does not exist in muguet ; besides, the excretion which accompanies aphthæ always succeeds ulceration, and is always observed on the internal surface of the lips and cheeks ; whilst the white specks in muguet appear upon the lateral parts, and towards the tip of the inflamed tongue, and extend to the surrounding parts.

It sometimes happens that aphthæ become covered with a brown crust, which is produced by the escape of blood from the ulcerated surface beneath it ; and this has been mistaken for angina maligna, and gangrene. This error would lead to dangerous practice, the use of stimulants, such as ammonia, wine, quinine, &c., instead of leeching, purgation, and antiphlogistic remedies. The result would be that simple ulcerations might be speedily converted into gangrene, which would very much endanger life. There is good reason to suppose that Van Swieten, Rosen, Underwood, and many others, have made this mistake.

When the aphthous inflammation is slight, and when it readily yields to remedies, the ulcerations rapidly heal without leaving any trace behind them.

It appears, then, from the preceding statements, that aphthæ of the mouth and other mucous surfaces present two periods in their inflammatory developement—they consist of small white tumours, or these tumours ulcerate, or become gangrenous.

Aphthæ have been compared to miliary eruptions on the skin, by Boerhaave, Van Swieten, Sauvages, Arneman, Willan, Bateman, and others ; but if they depend on inflammation of the muciparous follicles, of which I think there is not the smallest doubt, they cannot be compared to the vesicles of miliary eruption, from which they totally differ.

As we now possess a correct view of the pathology of aphthæ, we may inquire into their causes, general symptoms, complications, and treatment.

Aphthæ are not peculiar, though most common to infants : adults are also liable to them. This led Bateman to propose the division, *aphtha lactantium*, *aphtha adultorum*. He was right : the disease may attack infants at the breast, as well as adults. The disease appears in the latter, when the last stage of phthisis arrives, and also in many other chronic diseases. The disease is most common to feeble, lymphatic, or scrofulous infants. When the lymphatic system predominates, it is readily excited by a bad alimentation, by vitiated air in ill-ventilated situations, or where a large number of infants are crowded together. Such is the result of the researches and considerations of Raulin, Lapeyronie, Baudelocque, Auvity, Sanponts, and many others. It therefore follows, that the follicular apparatus of the whole alimentary canal acquires an increase of vital energy at the same time as the lymphatic system ; hence arises this disposition of infants to inflammation of the follicles, and to the alterations which succeed it in different portions of the digestive tube.

M. Billard has observed, at the Foundling Hospital, that whilst muguet prevailed to the greatest extent among the new-born infants, aphthæ were rare before the first dentition. M. Denis is also of this opinion, but experience warrants me to draw a different conclusion as regards the appearance of the disease in this country. Aphthæ are exceedingly common to new-born infants, more especially when spoon fed, or when applied too often to the breast. It occurs as early as the third day, is common during the first month, and less frequent towards the period of the first dentition. M. Billard accounts for his conclusion by stating, that if we follow the anatomical development of the lymphatic glands and follicular apparatus of the digestive tube in the new-born infant, we shall see that these glands are scarcely designed in the new-born infant, but rapidly increase during the first four or five months of life; so that the developement of the lymphatic system attracts with it, if I may use the term, all its dependencies, impresses on the constitution of the infant a particular idiosyncrasy, from which results its predisposition to inflammation of the follicles and muciparous glands. Thus anatomical and pathological observation are found to accord. Notwithstanding this statement, we see aphthæ in very young infants, but certainly not so severe as at the fourth or fifth month, or during the first year. It has been remarked by Underwood, Billard, and others, that there is no fever accompanying aphthæ, though the mouth may be so hot and parched as to irritate the nipple, and oblige the infant to take it with repugnance or precaution. The absence of fever is explicable by modern pathology. Pinel has shown that it is only after an alteration of the mucous membrane of the digestive apparatus, or what he terms *adenomeningée*, that it appears. He drew this conclusion after his numerous observations on the dead bodies of those who fell victims in the different epidemics of mucous fevers. The state of the mouth, œsophagus, stomach, and intestines, were, according to him, well worthy of remark as to the affection of the mucous membrane of these parts. Nothing was more common than to find aphthæ in the throat; that is to say, the detachment of shreds similar to the epiderm which covers the mucous membrane. (*Nosograph. Philos.* t. 1.) The more recent observations of other pathologists have amply attested the truth of this conclusion. It is also a certain fact, that there exists at the same time a similar alteration in the follicular apparatus of the intestines, and in cases of infantile remittent fever, this is invariably observed.

When aphthæ are distinct, there is little inconvenience during the first period of their development; but it is not so when they are confluent. We then observe that the infant becomes pale, emaciates rapidly, has an abundant secretion, and vomits everything it takes. This results from the extension of the disease to the œsophagus, stomach, and intestines, complications the most frequent and fatal. We also occasionally observe regurgitations

and eructations which give out an acid odour, which is often to be ascribed to the milk the infant sucks or drinks, which the diseased stomach cannot digest, and it is vomited when it begins to undergo decomposition. This acid odour is exactly similar to that of milk turned by heat, or by vinegar. The stomach of the infant is very often disposed to secrete an acid gastric fluid, and various acids, according to some modern pathologists, and this will much more satisfactorily account for the acid odour of the matters vomited or discharged by the lower bowels, than by referring it to the acidity or alkalinity of the humours of the infant. It is not the acidity of the humours that causes the acid odour of the food vomited by persons who dine on indigestible diet, or when digestion is interrupted by a vivid mental emotion, the motion of a vehicle or of a ship.

When aphthæ extend to the intestinal tube, there will be irritation, griping, and diarrhœa, and the discharges from the bowels are so acrid as to irritate the parts about the anus, which become erythematous, red and covered with white specks, similar to the primary disease in the mouth. There is no difficulty in explaining the presence of aphthæ along the whole tract of the mucous membrane of the digestive tube, from the mouth to the anus, or on the vagina or other portions of the mucous membrane, nor on the derm or skin when irritated, as this tissue is, according to many of our most distinguished general anatomists, analogous to, or continuous with, the internal lining or mucous membrane of all the passages of the body.

Aphthæ of the mouth are accompanied by pain, as we may suppose by the cries of the infant, its insomnia or want of sleep, its peevishness, and disinclination to irritate the mouth by taking food. When the disease extends to the throat, and causes swellings of the tonsils, inflammation of the lining membrane of the windpipe, which is continuous with the mouth and whole digestive tube, the cries of the infant are remarkably altered, and it is this that has led M. Gardien to say, that infants manifest their pains more by hoarseness and wheezing than by real cries.—(*Traité Complet d'Accouchemens*, &c.)

Having now described the pathology of this disease, it remains for me to enumerate the symptoms.

SYMPTOMS.—These consist of an eruption of small white specks, single or confluent, that is, running into each other, which are not vesicles or pustules, which appear on the tongue, lips, cheeks, gums, uvula, palate, and tonsils. They usually soften in the centre, and discharge a glutinous mucus, which forms a thick whitish crust, adhering at first most tenaciously, and falling off without inducing an eschar on the parts beneath. In some cases, the lining membrane of the mouth and throat, and the surface of the tongue become covered with patches of a loose ragged membrane, hanging from these parts, and of a dull white, greyish, or reddish colour.

There is difficulty of mastication, deglutition, and respiration, in some cases; and the disease may extend to the œsophagus, stomach, and throughout the whole alimentary canal, forming gastro-enteritis, when mucus is evacuated in large quantities by vomiting and stool; and at other times, to the trachea and bronchiæ, when mucus is expelled by coughing. Aphthæ often fall off in the space of ten or twelve hours, but they remain attached for several days, and frequently a separation and reproduction take place several times, before the termination of the disease. In severe cases the ulcers assume a livid colour, and become gangrenous; in others the surface of the tongue between the ulcers is of a bright red colour. The disease is most common to children in early infancy, though it may appear at any subsequent period of life. It was formerly considered endemic, and sometimes contagious; but this pathology is, I believe, exploded at present.

At the commencement of the disease the infant experiences a disinclination to the breast, and is fretful whenever it is applied. Its appetite is bad, and its motions are depraved, though in some cases there is scarcely any indisposition. In others there is much feverishness and irritability, the mouth becomes hot and tender, the nipples of the nurse become painful and sometimes excoriated or chapped, from the contact of the infant's mouth. The disease is slight when confined to the mouth; but when it extends to the œsophagus, stomach, and bowels, there will be frequent vomiting and diarrhœa, and the last disease irritates and excoriates the lower bowel called the rectum, and the fundament, which become covered with spots like those in the mouth. It does not follow, however, that in this last case the internal surface of the mucous membrane throughout the whole digestive tube is affected, as dissection has shown the contrary, and the sympathy between the mouth and lower bowel would account for the affection of the latter, though the intervening portion of the tube might be free from the disease, just as we observe picking of the nose and lips excited by worms in the rectum.

CAUSES.—*The predisposing causes* of aphthæ are debility, exposure to impure air, use of improper food, a lymphatic temperament, cold, moisture, and debility.

The exciting causes are irritation of the mouth, by allowing the infant to take the breast, or suck a prepared teat or shield too often, and very frequently derangement of the bowels.

TREATMENT.—*Indications.*—1. To moderate or remove the inflammation. 2. To produce a separation of the aphthæ and to heal the superficial ulcers.

The first indication will be accomplished by frequently washing the mouth with lint or soft sponge firmly tied to a small piece of wood, or whalebone, and warm water alone, milk and water, decoction of marsh mallows, linseed, barley or by any other mild mucilaginous fluid; and also to apply the vapour of such decoctions or of

warm water, to the interior of the mouth. The bowels are to be opened with appropriate medicines, as manna, magnesia, or castor oil. It will also be necessary not to lose sight of the state of the general health of the infant, which may result from impure air or improper alimentation. Infants badly nursed or deprived of sufficient food become rapidly feeble; and we should therefore remove all causes of debility which affect the glandular and follicular systems, always attending to the state of the digestive organs, and taking care not to irritate them by stimulants or the injudicious employment of tonics. These means are sufficient for the cure of the benign form of the disease.

When the aphthæ remain stationary, and are surrounded by inflammatory circles, a leech or two applied to each cheek, with a warm bath, will be necessary, in addition to the above-mentioned remedies, to combat the inflammation. The warm bath will determine the blood to the trunk and extremities, lessen it in the different parts of the mouth, and thereby diminish the inflammation which causes aphthæ.

As soon as the inflammation is subdued, and that the aphthæ remain adherent after the employment of emollient lotions, we should use stimulant gargles to detach them. We thus fulfil the second indication of treatment. Borax and honey, or *mel boracis* is an old remedy, but one much too stimulating, more especially as it is in general applied too rudely with the finger covered with a piece of muslin. A better application is composed of one drachm of borax, one ounce of honey, and half-a-pint of water, and this should be gently and frequently employed in the manner already mentioned. Others prefer equal parts of honey of roses and barley-water, with a few drops of dilute sulphuric acid. It is often beneficial to touch the ulcerated surface with a piece of sulphate of alumina, with a view of exciting a new action in the ulcerated parts, and to dispose the inflamed surfaces to cicatrise. Alum is an old remedy, and was first employed by Aretæus in the treatment of chronic inflammations of the mouth and pharynx. This medicine was lately recommended by Mr. Mackenzie, of Glasgow, and M. Bretonneau, of Tours, to detach the effusion of the lymph on the soft palate and pharynx in the first stage of croup. It is always necessary to employ it with caution in aphthæ, and to alternate it with emollient gargles, so as not to exceed the degree of irritation which we wish to obtain with this medicine. If used with reserve and proper caution it accomplishes the same result as borax and sulphate of zinc, which are much more excitant. We should also employ a proper solution of chloride of lime or soda in a mucilaginous fluid, as recommended in muguet: a drachm of the solution of either chloride may be mixed with a pint of barley-water, and properly sweetened.

When the infant is irritable and deprived of sleep, it should have an anodyne, as syrup of poppies, sedative solution of opium, the

preparations of morphia, henbane, &c., in appropriate doses. Great caution is necessary in exhibiting emetics and purgatives, lest gastro-enteritis exist.

If there be no reason to suspect this complication, the bowels may be opened with castor oil, almond oil, manna, magnesia, or calomel: and when the disease is solely confined to the mouth, and continues for several days, it will be necessary to give a course of alterative medicines, such as three or four grains of the hydrargyrum cum creta (chalk with mercury) at night, and a teaspoonful of castor oil every second or third morning. Alterative powders composed of a grain of hydrargyrum cum creta, or half a grain of calomel, with three or four grains of rhubarb, and two of aromatic powder, may be given once or twice a-day with great benefit. The diet of the nurse should be mild and nourishing, and all stimulating articles avoided. All these remedies will sometimes fail, and in such cases change of air is the last alternative. The country or sea air usually acts very favourably in all cases of chronic diseases in children. A nourishing diet, as mentioned when describing artificial food of infants, and for scrofulous children, is also necessary.

When the stomach and intestines are implicated, the treatment for gastro-enteritis will be very requisite. If the aphthæ terminate by gangrene, they are to be treated by the means which will be mentioned in the article Gangrenous Stomatitis, or Aphthæ. If they are complicated with or replace a cutaneous disease, by warm baths, frictions on the skin, and the means already advised. When diarrhœa is present, it is to be treated as stated when describing that disease.

Ulcerous Stomatitis.—This species of stomatitis is caused by inflammation of the mucous membrane of any of the parts which compose the mouth, cheeks, and throat; and is a different disease from aphthæ.

It appears as the result of inflammation or ramollissement of the mucous membrane, and is not preceded by any aphthous appearance.

The treatment should be antiphlogistic when leeching, purgation, warm bath and counter-irritation are to be employed; and when ulceration is established, the same remedies used for aphthæ are necessary. Slight escharotics are useful in obstinate cases, and if gangrene supervene, we should have recourse to the remedies for that disease which are given in the last stage of typhus.

These ulcers appear on and under the tongue, on the cheek, and soft palate, arch of the palate, and roof of the mouth, and, according to M. Billard, are often fatal. We frequently see them in cases of adults whose digestion and general health are bad, and also towards the termination of certain chronic diseases.

Pustulous Stomatitis.—M. Billard employs this term to characterise the inflammations of the buccal mucous membrane, which is developed during the progress of small-pox, and which gives rise to

pustules analogous to those on the skin. He does not state the exact seat of this form, but says that it is to be treated on the same principles as small-pox.

Gangrenous Stomatitis.—This was termed gangrenous aphthæ by Dr. Underwood and subsequent writers, and is graphically described by M. Billard. Gangrene of the buccal mucous membrane, or of the soft parts that form the cavity of the mouth, may succeed the different forms of stomatitis already described, but particularly the follicular species of that disease.

When aphthæ terminate in gangrene, their edges assume a burned, torn, and soft appearance; they present a brown eschar, which when detached, leaves an open surface, of a vermilion and granulated aspect. The eschar is sometimes covered with a soft pultaceous substance, of a brown colour, and with an evident gangrenous odour. The surrounding parts become swollen, are of a violet colour, and are soft and easily depressed. The mouth of the infant, which is generally open, allows the escape of the saliva, the face is pale, there is great prostration of the vital powers, and an absence of the fever. The pulse is extremely feeble, the skin is cold, pale and insensible. After some time, vomiting, diarrhœa, tumefaction of the abdomen, and sometimes hiccup supervene.

Gangrene consequent on aphthæ is extremely fatal, as it is accompanied by great prostration of strength, or to use a common term, by debility. The indications of *treatment* are to support the strength and correct the state of the affected parts. The best means to accomplish these indications, are to support the strength by aromatic spirit of ammonia, wine, quinine, animal and vegetable jellies; and to touch the gangrenous parts with a solution of chloride of lime or soda, or with sulphuric, nitric, or muriatic acid, by means of a capillary glass tube. A mucilaginous fluid, acidulated with some of the chlorides or acids just mentioned, may be applied to the gangrenous parts of the mouth with a piece of soft sponge, or some lint tied on a piece of wood or whalebone. Some advise the application of a solution of alum, and others prefer the nitrate of silver, (lunar caustic,) or the fused potass formerly called the lapis infernalis. The first mentioned remedies are most efficacious according to my own experience.

There is another form of *gangrene of the mouth*, which is not preceded by inflammation. This disease is well described by some modern French physicians. MM. Baron, Guersent, Jadelot, and Isnard, have most graphically described it. The first and last of these authors have treated of it the most successfully.* Van Swieten, in his learned Commentaries on Boheraave's Aphorisms on Diseases of Infants, has described gangrene and destruction of the

* Baron, Mem. sur une affection gangreneuse de la bouche. Bullet. de la Faculte, 1816. Isnard, Dissertation sur une affection gangreneuse particulière aux enfans. Paris, 1813.

gums; but the disease under notice extends to and affects the mucous membrane, and the parietes or structures that compose the cheeks.

I have already stated that the hands, feet, and external genital organs of female infants may be attacked with gangrene, and so may the soft parts that compose the mouth. Infants who are feeble at birth, or affected with chronic or severe diseases, are most liable to it.

According to MM. Baron and Billard, there are two forms of this disease. The first presents a circumscribed œdematous swelling, characterised by an oily appearance of the skin, and by a central point, which is more or less hard, over which there is a dark red spot either on the internal or external surface of the cheek. In cases of young infants there is no fever. An eschar forms on this central spot from within outwards, the mucous membrane becomes disorganized, all the soft parts to the periosteum mortify, and fall off in shreds, mixed with a sanguineous dark fluid, the parietes of the cheeks and gums are destroyed, are expelled from the mouth, and exhale a fœtid odour. This is the second degree.

This disease must not be confounded with gangrene of the mouth, accompanied by malignant pustule, which commences on the cheek; or as M. Rayer has remarked, the first differs from the malignant pustule, as the gangrenous inflammation commences in the interior of the mouth, and extends consequently to the skin. This form of gangrene often succeeds small-pox, measles, and scarlatina, and the face and extremities are œdematous at the same time. A similar disease to this attacks the external genital organs of female infants, and they often die of gangrene of the vulva. Dr. Percival and Mr. Kindar Wood, of Manchester, have graphically described this gangrene, and their account of it will appear in the article on diseases of the genito-urinary organs.

TREATMENT.—The treatment must be modified according to the stage of the disease. When there is œdema of the cheek, it is to be treated like that of other parts, by purgation, diuretics, diaphoretics, cold applications, as spirit lotion, or one composed of hydrochlorate of ammonia with nitrate of potass. When the œdema is circumscribed, it may be removed by frictions with the liniments of ammonia, and if the part become red a leech or two should be applied.

When these remedies fail, and the disease advances, the affected part becomes purplish or black, and there is erosion of the cheek internally, it will be necessary to cauterize the central point of the tumefaction with hydrochlorate of antimony, introduced through a crucial incision made on the external surface of the cheek, or to apply a wire at a white heat, as strongly advised by M. Baron. He prefers it to potential cauteries, as these destroy too much surface and cause greater deformity than his application. Fomen-

tations and emollient cataplasms are necessary after either application, and the mouth ought to be washed with a mucilaginous acidulated gargle, to detach the eschar and moderate the inflammation. This plan often arrests the progress of the disease much better than constitutional remedies. A weak solution of the chlorurets of lime or soda are very efficacious.—See p. 88.

The constitution should, however, be supported by the use of beef-tea, chicken-broth, milk, light wine, in small quantities and diluted with water. The best wines are Malaga, Bucelles, or Sherry. It is always to be remembered that though there is great debility, the digestive tube is often the seat of irritation or inflammation, (gastro-enteritis,) and therefore stimulating medicines or drinks will only increase it. If there is no symptom of gastro-enteritis, no pain on pressing the abdomen, no vomiting, a cautious use of stimulants is indicated. Modern pathology teaches us, however, that abdominal inflammation often exists without the usual symptoms. M. Billard has related two cases in point.

The French are too fearful of intestinal inflammation, and withhold the use of stimulants on this account in almost all diseases. This is sometimes correct, but the universal application of it in all diseases is decidedly erroneous according to my experience. Thus I treat numerous dyspeptics with tonics combined with aromatics, both at the Hospital and Dispensary with success, though many of these patients would be treated on the antiphlogistic plan by others. The diagnosis between functional and structural dyspepsia is easily drawn. If the symptoms be aggravated by warm fluids, such as tea, dilute spirit of any kind, there is every reason to suspect gastric or intestinal irritation, caused by congestion or inflammation of some portion of the gastro-intestinal mucous membrane, and in such cases mucilaginous drinks, leeches to the stomach, and enemata are the remedies. But if the patient is relieved by warm stimulants, which is the case in nine instances out of ten, the bitter infusions with ether, and oil of peppermint, with proper attention to regimen and the bowels, will effect a cure.

I have also repeatedly observed the good effects of stimulants in the last stage of infantile remittent fever, in which there is good reason to suspect intestinal inflammation or ulceration; and similar good effects are derived in the last stage of typhus from stimulation. I have been in many consultations during which some opposed stimulation on the grounds already stated, the majority advised it, and a marked improvement was the result. The reverse has happened in other instances. It appears to me that if the patient is sinking, even though there be reason to suspect intestinal inflammation, and when the time for employing antiphlogistic means has gone by, we are justified in using stimulants. Modern Pathology has proved that the various forms of stomatitis now described, may affect the whole digestive canal from the mouth to the anus.

Glossitis, or inflammation of the fleshy part of the tongue, is not a disease of infants at the breast, though sometimes observed in children from the seventh year to the adult age. The mucous membrane which covers the tongue is very often inflamed in young infants when affected with stomatitis, (inflammation of the mouth,) aphthæ, or thrush. Glossitis of adults may terminate in scirrhus or cancer, a result I have observed in two cases.

DEVELOPEMENT AND DISEASES OF THE FIRST DENTITION.—I have always contended, that dentition or teething is a natural function, and would not be productive of pain or any disease, were the infant in perfect health and its physical education properly conducted. Repeated observation has convinced me of the truth of this conclusion. I have frequently known a vast number of infants, who were managed according to the principles I have laid down for their physical education, that suffered no inconvenience or pain during dentition: in fact, they cut their teeth without their parents or nurses having been aware of it. But infants, in general, suffer severely during dentition, as most of them are affected with irritation in the stomach and bowels, in the organs of the head and chest, in consequence of errors in diet, clothing, exposure to cold, &c. Irritation in the digestive apparatus will extend to the gums, or irritation in any part of the body may derange the whole economy.

There is great importance attached both by medical practitioners and the public to the pathological phenomena connected with the developement of the first dentition. These are very erroneously, in my opinion, attributed to the effort which nature makes in effecting the eruption of the teeth. I shall therefore describe the teeth from their first appearance in their sockets, to their eruption through the gums; and then consider the pathological phenomena of dentition.

There is a vast discrepancy of opinion between physiologists on the developement of the teeth. I shall, therefore, quote those who have most minutely examined the function of dentition. Among these are the industrious M. Billard, who not only adduced the chief conclusions of preceding writers, but made numerous dissections, on the results of which he bases his own views on the subject. These I shall give in a condensed form, avoiding all hypothesis.

There exists between the dentary follicles and those of the maxillary bone, which conceals them, very remarkable relations.

The alveolar process of both jaws, in the infant about the third month, consists in a unique groove straighter towards the median line than towards the molar region, and this groove contains a mass of follicles, which, without uniting, are nevertheless so intimately grouped, as to appear to form a unique multilobate mass. From the fourth to the fifth month these lobules, which are dentary follicles, are more distinct; instead of being grouped, as it were, one over the other, form an elongated cluster, usually composed of eight dis-

tinct follicles ; they are so contiguous that they may be raised from maxillary groove, and if care be taken in the dissection, we may raise with them the dentary artery and nerve, which serve them as a pedicle. If we now examine the alveolar cavity, we find that it presents on its lateral surfaces small projecting points which adhered to the follicles already mentioned. As the infant advances in age, both unite and form transverse septa or partitions, the spaces between which constitute the alveolar processes or sockets of the teeth. The follicles between the sockets are now supplied with nerves and arteries.

Most physiologists admit that the fang, or root of the tooth is supplied with blood, but that the enamel is not, as no injection has ever penetrated it. John Hunter concluded that the teeth were not vascular ; and Blake concluded directly contrary. Beclard observes, “ we can, I believe, say that the ivory of the crown has not vessels continuous with those of the pulp, but that, nevertheless, it receives continually a fluid which penetrates it by imbibition, that it is probable in regard to the pulp there is the same relation with vessels, as between the hairs, nails, and horns with the skin. *Dict. de Médecine ou Répertoire General des Sciences Med. &c.* T. 11, Paris, June, 1835.

At the period of birth there are generally five distinct sockets in the lower jaw. Each follicle is isolated in its socket.

The alveolar processes are lined by a very thin fine membrane, and the follicle is composed of two membranes, which are discovered with difficulty, according to John Hunter, Fox, Blake, Bichat, Meckel, and others. Meckel says there is a fluid between them, which is more or less abundant in proportion to the age of the fœtus. The external one is, according to him more relaxed, soft, and spongy, than the internal. It is continuous with the gum. The internal membrane is harder and thinner. It forms a sac distinct from the external one and the gum. Its connexions with the teeth are more intimate than those of the external one, for it is, properly speaking, the formative organ. The dentary vessels expand upon it, in a very evident manner, and when injected are very evident.*

About the fifth month of uterine gestation, the rudiments of the incisor teeth develop themselves in two or three points on the superior part of the internal membrane. These points unite and form a bifurcation, of which the incisors often retain the form on their appearance. These primitive points of induration form scales, which are surrounded by a soft pulp, to which they firmly adhere. It is evident that they are the product of a secretion from the surface of the dentary germ, and the ossification proceeds from above downwards, takes the form of the crown of the tooth, presents a

* Manuel d'Anat. general descrip. et path. par J. F. Meckel : traduit par A. Jourdan et G. Breschet, Paris, 1825.

depression or circular neck, from which the neck or root is developed. It is also necessary to state that the ossification proceeds from within outwards. The process of dentition commences in the lower jaw, and advances more rapidly than in the upper. On the fullest consideration of all facts observed on this branch of physiology, the following conclusions have been drawn:—1, that the teeth are the produce of a secretion, as maintained by the illustrious Cuvier; 2, that their developement advances regularly, according to the progress of ossification of the maxillary or jaw-bones; 3, that their appearance above the gums, results in some measure from the developement of the teeth, and from that of the alveolar arch; 4, that the cause of the successive appearance of the first and second incisor teeth, of the first molar, and next of the first incisor, is altogether mechanical; that it depends on the more or less perfect formation of the alveolar process intended for each of these teeth, and on the more or less perfect manner in which each tooth is implanted in the maxillary bone.

Many other eminent physiologists besides those already mentioned, have considered the progress of the developement of the teeth in relation to that of the alveolar processes and maxillary bones.*

All the world knows of the changes which the teeth pass through in the different periods of life—that at birth there are none to be seen—that by-and-bye they present themselves—then again disappear, to be replaced by another set, which are themselves in turn frequently cast away before the termination of a natural life; and yet few persons, even those most apt to investigate the causes of passing events, ever think of inquiring why or how do these changes happen? They manifestly take place in accommodation of the stationary character of teeth, as regards size, with the varying dimensions of the jaw-bones at different ages. The teeth, in consequence of the chrystalline enamel which encrusts their exterior, have not a power of enlargement like the other bones of the body, and consequently those which are suited to the capacity of the mouth of a child would be ill adapted to the enlarged jaws of an adult; they are then thrown off, and new ones of an appropriate size generated. The shedding of the teeth in old age arises from a different cause, and is followed by a very different result. The teeth, like their possessor, become old and infirm; the circulation of blood in them is obstructed by a clogging up of the holes in their fangs, through which the nutritious vessels find an entrance; and they undergo a premature death. In this state, no longer acting in reciprocity with the living parts about them, they are loosened and ejected from the mouth.

* M. Lévêillé *Mem. sur les Rapports qui existent entre les premières et secondes dents, etc.* *Mem. de la Soc. Med. d'Emulat.* op. cit. Miel, t. 9. M. Delabarre, *Methode Naturelle de diriger la seconde dentition*, Paris, 1826.

It would be foreign to my present purpose to notice all the anomalies of dentition : how some infants are born with teeth,—Richard III.—Louis XIV.—Mirabeau, and others—how other individuals arrive at the adult age without a single tooth, as was exemplified by a pupil of mine, and lastly, how persons at the age of seventy or eighty, who had lost all their teeth, were supplied with a new and complete set. There is a vast deal of information on this subject in Good's Study of Medicine, and in the various treatises on physiology. Some of our surgeon dentists have also accumulated many singular facts of the same description. To these writers I must refer the reader.

For the same reason I shall not cite examples of molar teeth having been developed in place of incisors, or when many of the teeth are wanting, are in close apposition by tartar, or bony union of the crown and roots, as mentioned by Fox. I am only noticing at present the anomalies of the teeth before and immediately after birth.

DISEASES.—Dentition is a natural function and is often accomplished without disturbing the health. It is generally accompanied by an increase of saliva, the infant drivels, the gum is red, hot, painful, and swollen. The infant puts its fingers, or whatever it can grasp, into the mouth, and presses its gums upon it, which excites absorption and promotes the cutting of the teeth. Pressure, however, is not borne when true inflammation is present, but only when there is the natural excitement, pruritus or itching of the gums. In some cases there is intense inflammation or congestion of the gum, in others there is hæmorrhage into the alveolar processes, or ulcerations ; but these cases are of very rare occurrence, M. Billard gives autopsies or dissections of such cases. In other instances there is general redness of the mucous membrane of the mouth, with all the characters of erythematous stomatitis, fever, vomiting diarrhœa, and sometimes gastro-enteritis. In other cases, a severe aphthæ, gingivitis, or gangrene, supervenes. A vast number of infantine diseases is attributed to dentition, and it is said to destroy many infants. It is true that inflammation of the gum may irritate the whole digestive tube, the brain, and the respiratory organs, in the same manner as local irritation or inflammation in any part of the body may derange the whole economy. The injury of one nerve may derange the whole, produce convulsions, tetanus, or death. It is for this reason that we have not only the usual symptoms of pain in an inflamed or irritated part, but also in many remote organs—a fact that those uninitiated in medicine cannot comprehend. Thus dentition may cause determination of blood to the head, inflammation of the brain or its coverings, (cerebritis, meningitis,) water in the head, and likewise inflammation of the throat, œsophagus, stomach and bowels, diarrhœa, cough, and inflammation of the lungs, bronchi or pleura.

Many infants have disturbed sleep, and become fretful during dentition. There is a natural salivation which supplies the gums ;

and the infant, like all young animals, bites all bodies it can grasp. This pressure is useful in causing absorption of the gums ; and it is for this reason that rings of ivory, bone, glass, coral, and gum-sticks, are employed with advantage. These, however, are hurtful when the gums are red, hot, and inflamed, as the point of the tooth presses on the inflamed gum. At this time softer substances are used—such as India rubber rings, dried figs, &c. These substances are moistened and softened by the saliva, soothe the tissue of the gums, and prevent inflammation.*

The *treatment* of the local complaints of the first dentition, ought to be simple. The plan proposed by the celebrated Boerhaave is one of the best. He advised the application of emollient, mucilaginous, and refrigerant lotions to the gums ; antiphlogistics, hard gum-sticks, and incising the gums with a lancet. He recommended cream, the white of egg with syrup of violets, or rose-water ; this gargle was to be applied to the gums on lint. Others have added a small quantity of laudanum. This is the chief ingredient in all patent vegetable syrups for cutting of the teeth. It requires to be used in very small quantity, not more than two or three drops at a time. It may be swallowed with the saliva, and narcotise or poison the infant. When there is heaviness and constant tendency to sleep, we suspect congestion of the brain, and follow the advice of Harris, by applying a leech at the angle or affected part of each jaw, or behind each ear. The infant should be placed in a warm bath, and a cap or napkin, wetted with cold water, applied to the head while the infant is in the bath. If this be omitted, the bath may do as much harm as good, by increasing the determination of blood to the head. The cold drives the blood from the head, while the heat diffuses it to the rest of the body ; and in this way the quantity in the brain is very much diminished. In such cases the bowels should be properly regulated. When there is fever, and it is accompanied by great thirst, a copious use of barley-water, cold water, milk and water, toast and water, should be given freely.

When there is inflammation of one or more points of the gums, leeches and incision are necessary. Van Swieten has given a very wise direction as to incision. It is not necessary, he says, to incise or cut the gum until it is evidently elevated by the tooth, and is hard, red, and painful ; for if the tooth is deep in the gum, it cannot be forced to make its appearance by incision ; this cicatrix, the cicatrix or scar, is harder than the tissue of the gum, and will give more resistance to the advance of the tooth than the latter. The practitioner will, therefore, in such a case, compromise his reputation, if he hazard incision until the tooth is pressing on the upper part of the gum. I have known one case, says Van Swie-

* Bracelets and amulets for cutting the teeth, are gross impositions on the credulity of the public. I need scarcely state, they are perfectly useless.

ten, in which the tooth did not appear for eight months after the incision (*Morbi Infantum.*) It must be obvious that cutting the gum, while the tooth is undeveloped and is buried in the jaw, is a useless and injudicious practice; because the operation cannot possibly favour the growth of the tooth. Yet the operation is recommended by one of our most eminent surgeons, on the grounds that a cicatrix being a new part is more readily absorbed than the gum. I agree, however, with those who entertain the opinion that incision ought not to be practised unless the gum is swollen, hot, and painful, in consequence of the pressure of the tooth against it. In making the incision prematurely, the appearance of the tooth, so far from being accelerated, is retarded, on account of opening the capsule of the tooth before the latter is perfectly ossified. As to the practice of scarifying the whole gum from one side of the jaw to the other, when a single tooth is protruding, it is a disgrace to modern surgery. I have heard of such incisions having been made several times, when each tooth advanced, which showed, in my opinion, the grossest ignorance on the part of the operator. The cruelty, the barbarity of cutting the whole gum from one extremity to the other, whenever a tooth projects, deserves the strongest reprobation.

The mode of incising the gum deserves attention. The head of the infant is to be held, while the operator opens the mouth and separates the jaws. He then introduces a bistoury, three-fourths of whose edge is covered with lint, and makes an incision parallel to the alveolar margin; and then, separating the jaws still more, he makes another incision transverse to the first. These incisions should be made down to the tooth—the gum ought to be completely divided, and no flap or bridle allowed to remain. This crucial incision discharges the congestion or inflammation of the gum, and removes the irritation caused by the pressure of the hard tooth on the irritated nerves of the gum which are subjected to it. This operation is by no means so painful as is generally imagined by mothers; indeed, I have repeatedly performed it, and the infants never cried during the incision. But in other instances they screamed loudly, and in a few seconds fell into a tranquil sleep, from which they awoke apparently in perfect health, even after they had been in convulsions, to the moment at which the incision was practised.

Some writers have lauded this operation in the most extravagant terms, as having miraculously saved the lives of numerous infants. Others cannot believe that it has ever saved the life of a single infant. Experience has convinced me of its importance when there is a cerebral congestion, convulsions, spasmodic cough and breathing, excessive diarrhoea, inflammation of the fauces, or throat, and of the stomach and bowels, (gastro-enteritis.)

When dentition is complicated with these diseases, and the gum is swollen and painful, and incision will be followed, in most cases,

with decided advantage. I feel convinced that I have observed infants die for the want of it. I have never observed it followed by ulceration, gangrene, aphthæ, or stomatitis.

The limits by which I am circumscribed in this manual prevent me from noticing the whole pathology of dentition and the teeth at different periods of life, their irregularities, and the diseases caused by them; and for the same reason I omit dental surgery and hygiene. I cannot, however, but allude to my introduction of pure nitric acid as an application to caries in teeth of children and adults as a remedy which affords instantaneous relief of toothache, without causing any pain, provided it be used soon after the pain commences, and that the nerve of the tooth, the gum, and the alveolar process are free from inflammation or suppuration. It is much easier to apply it to the lower than to the upper teeth; and it should come in contact with every point of the caries to afford relief. This cannot always be accomplished when the upper teeth are affected, or in those cases in which the diseased part is on the side of the tooth and the next tooth in close contact with the diseased one. The acid should be pure and carefully applied so as not to spatter on the mouth; and after its application, the mouth should be washed out with tepid water. In most cases instantaneous relief is afforded; and the extraction of the tooth, which is a painful operation, rendered unnecessary. It is erroneously supposed that a tooth to which the acid is frequently applied decays very rapidly, but this is certainly not the fact. I have known several instances which prove the contrary. I have not known this remedy fail in a single instance of children or adults, when applied in a few hours after the commencement of the toothache, that is to say before the nerve of the affected tooth has had time to become inflamed. It has even frequently relieved patients whose cheeks were swollen and inflamed, when there was reason to suppose the nerve of the affected tooth was more or less inflamed. The acid excites severe pain in some cases, but these are rare exceptions.

Diseases of the Salivary Glands.—The salivary glands are very rarely diseased in new-born infants. M. Billard, whose observations were the most extensive, remarked but one case of runula. The soft palate, its pillars, the amygdalæ or tonsils and the pharynx, in other words, all the parts that compose the throat are liable to various vices of conformation and to congenital disease. I shall now consider these affections.

Vices of Conformation.—The vices of conformation of the velum palati or soft palate, consist in its division, more or less complete; or it may be too long, impeding deglutition, and requiring excision. When the palate is divided, the infant cannot suck properly, and the milk or other food it takes, may in bad cases escape through the nostrils. In cases of adults, the operation of staphyloraphy proposed and first performed by Baron Roux, is resorted

to in most cases with success. The pharynx or throat is too short in some infants, and impedes deglutition. When an infant cannot suck the breast milk, or that which it drinks, there is either malformation of the pharynx or œsophagus, or inflammation. Of two hundred infants from one to ten days old, whose bodies M. Billard examined, he found the isthmus of the throat injected or inflamed in ninety. He also found that this state of the throat existed in infants of eight or ten days old, who had redness of the derm or skin. This proves an intimate relation between the skin and mucous membrane of the digestive tube.

The tonsils are occasionally congested in new-born infants, and in some cases covered with a layer of blood. These, and all other soft parts of the throat are occasionally inflamed. MM. Roche and Sanson have described these varieties as palatitis, pharyngitis, palatopharyngitis; but as each of the parts included under these terms, is rarely the exclusive seat of inflammation, which usually attacks all of them in succession, I shall describe them under the term Inflammation of the Throat.

Amygdalitis, Tonsillitis, Cynanche Tonsillaris, or inflammatory sore throat, is most common to children, adolescents, and adults. It sometimes terminates in suppuration, and occasionally in gangrene. These terminations are, however, comparatively rare in new-born infants. Cynanche or angina is commonly termed quinsy; and this comprises all the forms now mentioned, as well as cynanche trachealis, or croup, trachitis, cynanche pharyngea maligna, or ulcerated sore throat.

Cynanche and inflammation of the fauces (throat,) considered in a general view, affects infants most frequently; it sometimes prevails, as an epidemic, in spring and autumn—seasons remarkable for the vicissitudes of the atmosphere; and it is also observed in some countries more than others. Infants are most commonly affected when suddenly exposed to the impression of cold air, after having been in a warm temperature, or when they repose in moist situations while in a state of perspiration. The sudden application of cold to the feet, the action of a current of cold air on the nape or front of the neck, cold drinks, while the body is heated, or in a state of perspiration, the deglutition of acrid or stimulating substances, walking in a contrary direction to a cold wind, long and loud crying, or singing; everything that suddenly suppresses transpiration (insensible perspiration,) or habitual evacuations, and everything which directly irritates the air-passages, may excite inflammation of the throat, windpipe, and induce quinsies.

The preceding causes may be divided into two classes—the first comprises all those that directly act on the pharyngo-tracheal mucous membrane, or that which lines the throat; and the other, those whose action is on organs which sympathise with it. In the first class are all mechanical or chemical irritants, whose source is

within or without the individual ; in the second, are cold and moisture which applied to the skin, suppress insensible perspiration, and determine blood from the skin to the internal organs and mucous membranes.

Angina is often preceded by cold chills, followed by heat ; the infant is restless—it is deprived of appetite and sleep, and it often rejects the breast milk, or any other food it may have taken.

The symptoms now vary according to the seat of the disease. If the tonsils are affected, there is difficult deglutition and respiration ; the infant raises its hand to its throat ; there is swelling externally, and on looking into the throat, we observe inflammatory redness of the soft palate, tonsils, and all parts that are visible. The mouth and throat are dry in the first stage of the disease, but soon become covered with a tenacious mucus or phlegm, and the inflammation extends along the mucous membrane into the eustachian tube to the ear, in which organ severe pain is occasionally experienced. This is often but not always the case.

SYMPTOMS.—The characteristic symptoms of inflammatory sore throat, or, to speak scientifically, of guttural or pharyngeal angina, are unusual redness, frequently covered with white spots on the posterior surface of the throat, great difficulty or impossibility of deglutition, the return of drinks or aliments by the nostrils, heat and dryness of the throat, and after some time, an expectoration of viscid, ropy, whitish or yellowish mucosity, (phlegm,) and, finally, acute pain in the Eustachian tube and ear, sometimes alteration of the voice, and at the same time a difficulty of articulating sounds. In some cases the voice is altered or suppressed, and there is a complete hoarseness.

In tracheal angina, or cynanche, (croup,) the inflammation affects the margins of the glottis, the larynx, trachea, and commencement of the bronchiæ. In such cases the respiration is impeded, or difficult, the cough is hoarse, the voice trembling, the expectoration slight, but after some time abundant ; the pulse is small and feeble, the patient is anxious and restless, and, in extreme cases, there appears to be danger of immediate suffocation. There is always some degree of fever in this disease, and it is, in general, more intense in the evening or night.

The duration of faucial, or guttural angina, (sore throat,) is more or less prolonged, according to the seat of the disease ; the tonsillar or guttural form continues for five or seven days, while the tracheal or croupal terminates in one, two, or three days.

The first usually terminates by resolution, though occasionally by suppuration : and in adults there may be ulceration or gangrene. When the tonsils suppurate, the abscess bursts into the mouth in most cases, and it may be opened with a sharp-pointed bistoury. It often happens that tonsillitis, or the inflammatory sore throat, may become chronic, the affected parts enlarged and indurated, and this state may persist, in grown persons—especially in those of a sero-

fulous habit—for weeks or months, unless removed by some of the preparations of iodine. I have seen some cases in which the tonsils were so enlarged as to impede deglutition and respiration, and to require tracheotomy. In one case of this description, for which the operation was proposed, an empiric passed the shank of a table-spoon into the throat, lacerated the tonsils, caused profuse hæmorrhage, and relieved the patient so much that tracheotomy was rendered unnecessary.

In chronic tonsillitis the use of iodine, in the form of gargle, and ointment applied to the throat, is highly advantageous, and generally removes the enlargement of the affected parts. There is not the slightest danger in using the hydriodate of potass dissolved in *distilled* water, and sweetened at the time of taking each dose, in cases of infants. I have found it a most valuable tonic and absorbent in the treatment of every form of scrofula and glandular enlargement in children.

The pharyngeal or guttural angina usually terminates by resolution; and occasionally by abscess. Sir Astley Cooper mentions an instructive case of this description, in his *Lectures on Surgery*. He opened the abscess, and the operation, with proper constitutional remedies, speedily restored the patient to health. Suppuration is however of rare occurrence.

The tracheal or croupal angina may terminate by resolution, when proper remedies are employed; but there is often a copious secretion of mucosity which the infant cannot expectorate, and which may cause suffocation; or coagulable lymph is thrown out on the inflamed mucous surface: this is converted into a false membrane which may partially or totally cover the whole internal surface of the wind-pipe, or render it completely impervious, and thus cause death from suffocation. I shall give a full account of the pathology and treatment of this form of angina, under the head of croup. In some cases an abscess forms, bursts, and causes suffocation; or the ulcerated surface does not cicatrize, as it is constantly irritated by the passage of air into the lungs, and will produce chronic angina, laryngeal or tracheal phthisis, and death, unless tracheotomy be performed. Several cases of this kind in adults have been cured by Mr. Carmichael of Dublin, by the operation of tracheotomy, of which there is a full account in the *Dublin Medical Journal*, 1834, vol. 4, and also in the *London Medical and Surgical Journal*, 1834, vol. 4.

In fine, tracheal angina may terminate in gangrene, though this of rare occurrence.

Each of these terminations is characterised by peculiar symptoms. Thus we presume that resolution will take place when the disease is slight and properly treated, when the respiration is not much impeded, and when there is expectoration, but this is not to be expected in young infants. These do not expectorate, for when they bring up mucosities by coughing, into the throat, they

immediately swallow them. Suppuration is to be feared when the disease is prolonged and does not yield to remedies, when the local pain is acute and throbbing, or when there are rigors or cold shiverings without any evident cause. An abscess is indicated in tonsillitis, when there is swelling, a sense of fluctuation, on pressure made with the finger, a whiteness of some part of the tumour, and finally by purulent expectoration and a cessation of all the symptoms.

There can be no difficulty in detecting induration; the inconvenience arising from it leads us to immediate discovery.

Ulceration is accompanied by painful deglutition and respiration, and may terminate in pharyngeal, laryngeal, tracheal, and bronchial phthisis, according to the seat which the diseases occupies.

Gangrene is to be dreaded, if the fever is intense, and the pain extremely violent, without any sign of resolution, suppuration, or metastasis; the countenance is sunken, the extremities cold and covered with a clammy perspiration, the pulse is small, soft, frequent and weak, and there is a fœtid odour issuing from the mouth. We often observe this train of symptoms in the worst form of scarlatina.

Infants are much more subject to the different species of cynanche, or quinsy, than adults, and are treated with more difficulty, on account of their want of reason, and terror of leeches, venesection, and their repugnance to medicine. Such is an outline of the pathology of angina; and I shall now make some general observations on the treatment.

TREATMENT.—The *treatment* of cynanche or angina, ought to be more or less active, according to the severity of the symptoms. When the disease is slight in very young infants, there is scarcely a necessity for using medicine. A moderate diet, a mild aperient, confinement to bed, with warm drinks, are generally sufficient to effect a cure. The diet of the wet nurse ought to be changed, and such as would remove all stimulating qualities from the breast milk.

When the infant is one or two years old, and suffers from pain during deglutition, evinced by its crying and raising its hand to its throat, the respiration laborious or difficult, and the tonsils so swollen as to be felt externally, there is inflammation which requires active treatment. The common practice is, to apply harts-horn and oil, on flannel, to the throat, and this causes such counter-irritation as frequently to arrest the progress of the disease.

If the bowels be opened with some mild aperient, and the infant's diet diminished, a cure is mostly effected. It is seldom necessary to apply leeches, unless the habit is robust. Most cases are cured without them. Some advise blisters, or a mustard poultice, to the throat, but these are seldom necessary in cases of children under three years of age. Others recommend emetics, brisk purgatives, and pediluvia, with a view of reducing the vital power :

but these, except the foot-bath, are rarely required in the treatment of young infants. The direction of emollient vapours into the throat, and the application of warm emollient cataplasms to the neck, are useful adjuvants. Gargles cannot be employed by young infants.

When suppuration takes place, the abscess may burst into the mouth, but this seldom occurs in early life. It is scarcely ever necessary to open the abscess with a bistoury; but should it point externally, we may, after the use of poultices, give vent to the matter with a lancet. In some cases the abscess is situated too low in the pharynx, or in the larynx, to admit of an artificial opening, and must be left to itself. In many cases it was not discovered until after death.

In cases of adults the disease requires active measures.

The *indications* of treatment are those for the treatment of inflammation in general.

Emetics are extremely useful in the beginning, before the febrile symptoms are very violent. The timely exhibition of an emetic often checks the complete formation of the disease.

R. Antimonii Tartarizati gr. ij; Sacchari Albi ʒj: Misco: fiat pulvis, in partes quatuor æquales dividendus, quarum capiat unam bis in horas donec probe vomat.

When the disease is not checked, the antiphlogistic regimen and diet must be enforced, and the inflammation attacked:

1. By blood-letting, general and local.

Mittatur sanguis e brachio, vel ex veno jugulari, ad animi defectionem.

Admoveanter hirudines quatuor vel sex parti affectæ.

Applicentur cucurbitulæ cum ferro sub aurem lateris affecti, et mittatur sanguis ad ʒiv. vel vj.

2. By blisters to the throat and back, and rubefacients.

Illinatur linimentum carbonatis ammoniæ vel linimentum camphoræ compositum in partem affectam, sextis horis.

Emplastrum cantharidis [vel cataplasma sinapis] collo imponendum quâ dolet.

3. By purging.

Pulvis purgans communis.

Haustus salinus purgans.

4. By diaphoretics, such as recommended against inflammatory fever.

5. By inhaling the steams of warm water, alone, or impregnated with vinegar, camphor, or æther.

6. By sedative or slightly stimulant gargles, [which facilitate the separation of viscid mucus from the fauces.]

R. Potassæ Nitratis ʒij; Aquæ Hordei fʒvij; Oxymellis fʒvij: Fiat gargarisma sæpe utendum.

R. Infusi Rosæ fʒvij; Tincturæ Myrrhæ fʒij: Misco pro gargarismate, [quò fauces sæpe humectantur.

R. Infusi Rosæ $\mathfrak{z}\text{iv}$; Mellis Rosæ $\mathfrak{z}\text{j}$; Fiat gargarisma.

R. Boracis $\mathfrak{z}\text{ij}$; Aquæ $\mathfrak{z}\text{vij}$; Mellis Rosæ $\mathfrak{z}\text{j}$: Miscæ ut fiat gargarisma.]

R. Acidi Muriatici $\mathfrak{f}\mathfrak{z}\text{ss}$; Aquæ Hordei $\mathfrak{f}\mathfrak{z}\text{vij}$; [Mellis Rosæ $\mathfrak{z}\text{j}$:] Fiat gargarisma.

If suppuration ensue, emollient cataplasm, warm emollient gargles, frequently inhaling the steams of warm water, early incision, [either internal or external.]

R. Caricarum Incisarum $\mathfrak{z}\text{iv}$; Lactis Vaccini $\mathfrak{f}\mathfrak{z}\text{xij}$:

Coque per sextam horæ partem, dein cola pro gargarismate, tepide, utendo.

If a tendency to gangrene, the means enumerated under the head Cynanche maligna are to be used. [See p. 312.]

If danger of suffocation, scarifications of the tumefied parts [with a bistoury or trochar], inhalation of æther, bronchotomy.

The strength of the patient should meanwhile be supported by nutritious clysters of animal broths, thick gruel, or a solution of starch.

Induration of chronic enlargement of the tonsils and glands of the neck, was once considered incurable, but now readily yields to the use of iodine. In some cases, as many as twenty-two enlarged glands under the jaws, and on both sides of the neck, have been cured with the ioduret of lead, or proto-ioduret of mercury, used as an ointment. The proportion is a scruple of either to an ounce of prepared lard. I have treated a boy nine years old, with the immense tumour extending from the right ear to the collar bone, which was declared incurable at one of the large hospitals, which was cured, however, in two months, with the ioduret of lead. A drachm of the ointment was rubbed night and morning over the tumour, and after three weeks the quantity was doubled. I might cite a large number of other obstinate cases, which were successfully treated by the internal and external use of iodine. This remedy will seldom fail, provided it be genuine, and employed judiciously.—(See *New Practical Formulary of Hospitals*.)

Gangrene is accompanied by great prostration of strength, which requires the employment of stimulants, ammonia, brandy, wine, quinine, &c. &c. I have known a vast number of infants, children, and adults, affected with gangrene of the throat, in malignant scarlatina, whose lives were saved by stimulation, the use of chloride of lime as a gargle, and also by its having been swallowed.—See p. 89.

In tracheal, laryngeal, or bronchial ulceration, causing phthisical symptoms, blisters, antimonial ointment, and stimulating embrocations, are applied over the front or back of the neck, and if these fail to afford relief, blisters, issues, and setons ought to be tried. All these remedies very commonly fail, and in this event, the infant is generally destroyed. Adults affected with this form

of disease, have been cured by tracheotomy, as already stated ; but this operation has seldom been performed in cases of children.

CYNANCHE MALIGNA.—SCARLATINA MALIGNA.—PUTRID SORE THROAT.

This disease was described as an epidemic by Dr. Fothergill about the middle of the last century. It principally attacked infants, children, and adolescents, who were delicate or enfeebled by former diseases. This form of angina is occasionally epidemic, and rarely sporadic. According to some it is contagious, as it attacks several children in the same family; and according to the best modern writers, it is scarlatina maligna.—See pp. 131—133.

SYMPTOMS.—The first symptoms of the disease are giddiness or pain in the head, cold shivering, alternating with heat of the skin, stiffness of neck, restlessness, flushed face, redness of the eyes, hoarseness, sore throat, nausea, vomiting, and sometimes diarrhœa. On inspection, the throat is observed of a vivid red or rose colour, especially the posterior pillars of the palate, the tonsils, and whole fauces. This redness soon becomes dark, and is interspersed with dark brown specks. The tongue becomes covered with a thick brown fur, the inside of the lips is beset with vesicles, and a thin acrid fluid escapes from the mouth and nostrils, irritating or excoxiating the contiguous parts, and, in some cases, a similar fluid is discharged from the anus; there is now diarrhœa; the fever advances with increased prostration of strength, the pulse is small, frequent, and irregular; delirium, coma, and great difficulty of respiration supervene, and, in some cases, the face, neck, throat, chest, hands, and fingers become swollen, and present an erysipelatous tint; and there is a scarlet eruption all over the body, which disappears by desquamation of the cuticle.

This occurs on the second or third day. The tongue is usually intensely red, the inflammation may extend along the mucous membrane of the fauces, nostrils, and Eustachian tubes, and be followed by a purulent discharge from the nostrils and ears. The pulse is small and frequent, there is great prostration of strength, the lips and gums are covered with a brownish fur, there is a fetid odour from the throat, and all the symptoms of typhus or putrid fever manifest themselves.—See p. 88.

On the fifth or sixth day the scarlet eruption disappears, leaving the skin of a brown colour; the cuticle peels off in small scales all over the body, and may even separate from the palms of the hands and soles of the feet in some cases.

Should the symptoms improve, the patient regains his appetite and strength; but it often happens that the convalescence is tedious, there is languor and debility, stiffness of the limbs, frequent pulse, disturbed sleep, loss of appetite, great thirst, scarcity of urine, which are rapidly succeeded by anasarca alone, or combined with

aseites or hydrothorax. I have known some of these dropsies occur so early as the tenth day ; and others three or four weeks after convalescence, and even when the appetite was good. The morbid change of the skin, which causes the exfoliation or peeling off of the cuticle, must derange transpiration, prevent or impede the cutaneous function, and throw a great quantity of the serous part of the blood into the cellular and serous tissues, and thus give rise to dropsy, or a preternatural effusion of such fluid in these tissues. Malignant or putrid sore throat, and malignant scarlatina, are now very generally considered the same disease, and are treated in the same manner. Some writers describe them separately ; but it has been found, on due consideration, that the symptomatology, pathology, and treatment of both, are precisely the same. This disease may terminate in health or death.

PROGNOSIS.—The *favourable* termination is announced by the moderation of the symptoms, and by their remission on the fourth or fifth day. The fever diminishes, the state of the throat is improved on the appearance of the eruption, the cuticle desquamates to a greater or less extent, in most but not in all cases, the sleep and appetite return.

The *unfavourable* termination is expected when the throat is of a deep red, ash, or purple colour, speedily succeeded by sloughs and deep ulcerations, accompanied by salivation, or a discharge of a corrosive, offensive fluid, some of which is swallowed, irritates the stomach and bowels, and may in adults and young persons induce violent diarrhœa. These symptoms are attended by great prostration of strength, delirium or coma, difficulty of deglutition and respiration, great anxiety of the countenance, the eruption of a dark colour, and in patches on the second day ; or it does not appear at the usual time, or for several days afterwards, which state is often followed by cerebral congestion, the lips, throat, and genitals becoming gangrenous, or passive hæmorrhages issuing from the nostrils, mouth, bowels, or bladder.

In other cases the fever continues after the desquamation ; there are glandular swellings, discharges of purulent matter from the nostrils or ears, anxious difficulty of respiration, stridulous voice, indicating the extension of the inflammation to the larynx and trachea ; acute pain in the ear, with deafness, the saliva tinged with blood, or of a dark colour ; the skin continuing dry, and covered with a fresh eruption, and there is also an increase of fever.

Morbid Appearances.—On dissection, the fauces or throat, larynx, or trachea, are found intensely inflamed, ulcerated, or gangrenous ; and as the respiration was difficult, preventing the return of blood from the head, and through the lungs, we find the brain or lungs congested or inflamed. This form of the disease is most dangerous, and often destroys several children in schools, and sometimes three out of four, in a day or two, in the same family. It is erroneously stated, in some works on the practice of medicine,

that scarlatina maligna is seldom fatal, though every observant practitioner can attest the contrary. Common inflammatory sore throat usually yields to antiphlogistic treatment, such as already described, and terminates by resolution, suppuration, or induration.

Gangrenous or malignant sore throat, on the contrary, is much more intense, has a tendency to terminate by superficial or deep-seated ulcerations, sloughing, and the other symptoms already enumerated. The disease is so sudden in its progress that depletion or leeching can seldom be employed, and according to most practitioners, are injurious.

TREATMENT.—The indications of treatment are, 1, to prevent the tendency to gangrene by supporting the strength of the system; 2, to promote the separation of the sloughs, and preserve the healthy state of the fauces.

To fulfil the first indication, the use of wine, bark, quinine, ammonia, and nutritious diet is necessary: in fact, the same remedies should be employed as in the last stage of typhous or adynamic fever. See p. 38.

The second indication will be accomplished by the employment of stimulant, tonic, and astringent gargles, such as infusion of capsicum, of roses acidulated, solutions of the chlorides of lime and soda, of muriatic acid, of myrrh, or watery extract of cinchona.

R. Capsici Contusi, gr. iv; Aquæ Bullientis, ℥viij; Mellis Rosæ, Tinct. Myrrhæ, āā ℥iv: Sit gargarisma sæpe usurpandum.

R. Infusi Rosæ ℥iij; Tinct. Myrrhæ ℥iij; Sacchari Pur. ℥v: Fiat gargarisma in usum.

R. Sol. Chlor. Calcis ℥j—ij; Mucilag. Acaciæ ℥j; Aquæ Fontis ℥vss; Syrupi Simplicis, ℥iv.

R. Vini rubri Lusitan., ℥vj; Extracti Cinchonæ ℥j: Misce in usum.

These may be injected into the throat with a small syringe, or applied by means of a piece of sponge or lint securely tied to a piece of wood or whalebone.

When the sloughs are formed they are often removed by the frequent use of some one of these gargles, and I have found the chloride the best; but should these fail, the diseased parts may be touched with the linimentum æuginis, a strong solution of alumen, or sulphuric or muriatic acid, in the proportion of thirty or forty drops in an ounce of honey, or the muriate or nitrate of mercury. During the whole course of the disease the strength ought to be supported with animal jellies, chicken-broth, beef-tea, and vegetable jellies, such as arrow-root, sago, tapioca, &c., with a due proportion of wine, or ardent spirit of any kind diluted with water.

If diarrhœa supervene, it is treated with astringents combined with opium, as directed in the description of that disease.

Hæmorrhages will, in general, be restrained by the use of acetate of lead in extreme cases. This is the best astringent for internal

use, according to my experience, and it will be found effectual in most cases of bleeding from the lungs, stomach, intestinal tube, uterus, or bladder of children and in adults. The following formula may be used in cases of infants under a year old in passive hæmorrhages :—

R. Plumbi Acetatis gr. ss ; Acidi Aceti dil. ℥ iij ; Aquæ destillatæ ʒj ; Liquoris Opii sed. ℥ iij-vj ; Syrupi simplicis ʒj : Dosis ʒj secundâ vel tertiâ horâ.

The same formula is most efficacious in similar diseases of adults, in appropriate doses.

The external application of vinegar and water, or of the compound solution of alumen by means of lint, may be applied to the different outlets of the body.

Sinapisms, blisters, and stimulant liniments are useful, though sometimes followed by gangrene. It is highly beneficial to sprinkle the apartment and bed-clothes with a weak solution of chloride of lime, in the proportion of one drachm, or about a small tea-spoonful, of the powder in half a-pint of water. This solution is preferable to that of the chloride of soda, which gives out a more unpleasant odour, impedes the respiration, and induces a sense of suffocation. To obviate the inconvenience of this odour there should be free ventilation, or a current of pure air must be occasionally admitted into the apartment. When the heat of the body is intense in the first stage of the disease, it is to be moderated by sponging the body with cold water and vinegar, or affusing cold water over the naked body. Dr. James Home, of Edinburgh, employed this remedy in measles, scarlatina, and small pox, both before and after the appearance of the eruption. When the lower extremities are cold, they ought to be immersed in warm water during the cold affusion, or dash, as it is now termed. The bowels should be opened moderately ; the cold affusion may be repeated for six or eight minutes, provided the temperature of the body is higher than natural. When the patient is of a full habit, we may employ venesection during the first two days ; but in some cases there is a well-marked inclination to putrescency, even on the first day, and detraction of blood is totally inadmissible. Some practitioners advise an emetic at first, in preference to all other remedies, and after its operation they order purgatives in divided doses. These last should be prescribed with caution, on account of the tendency to diarrhoea in this disease. A purgative, however, is necessary, and generally useful at the commencement of the disease, but it is dangerous when great debility or sloughing has taken place.

The malignant sore throat is more sudden and dangerous during some seasons than in others, and will require the application of leeches to the throat, which may prevent gangrene. We also observe one child affected with inflammatory sore throat which, if neglected, or not treated with leeches, purgation, &c., will speedily end in the malignant or gangrenous ; while we often see another

child in the same, or in an adjoining house in the same condition as the ormer; but by leeching, purging, &c., a cure is effected without any appearance of gangrene. When anasarca, ascites, or hydrothorax supervenes, the following remedies will be found effectual in a majority of cases.

It is scarcely necessary to observe that the dose must be increased or diminished, according to the developement and strength of constitution.

R. Pulv. Jalapæ C. ʒj—ʒss; Hydrarg. Subm. ʒss-ʒj; Pulveris Scillæ, Pulv. Digitalis aa gr. j—ij; Pulv. Cinnam. comp. ʒj; Pulv. Sacchari puri ʒss.

Tere intime et divide in chartulas decem, quarum capiat unum mane nocteque nisi alvus nimis soluta sit.

Children from two to four years of age are generally relieved by this medicine. They may take a diuretic mixture at the same time.

R. Potassæ Acetatis ʒss—j; Syrupi Simplicis ʒiij; Spiritus Æther. Nitros ℥xx—ʒss: Dosis ʒj bis vel ter in die.

In extremely bad cases, when the foregoing remedies fail, the following will prove efficacious, but the greatest care is necessary not to allow it to act too powerfully.

R. Elaterii Extracti gr. j—jss; Hydrargyri Submur. gr. xij—xx; Pulv. Cinnamom. Comp. ʒj—ʒss; Pulv. Sacchari purificati ʒss—ʒij.

In pulveris xij vel xvij, partitione exactissimè facta, divide, ex quibus sumatur unus bis vel ter de die, donec alvus copiose responderit.

Malignant sore throat, or scarlatina, is a most fatal disease, both to children and adults, and often destroys a great number of the former in schools. This is well known to all observant physicians, and the ablest acknowledge it. Yet we occasionally hear some practitioners asserting, in our medical societies, that they have never lost a single case of these; but this only proves their limited experience in treating it. It has fallen to my lot to see two and three dead children in one family, on being called in to treat one or two surviving ones; and I have also seen two adults, aged nineteen and twenty, lying dead at the same time, in consequence of scarlatina maligna, while a third, aged eighteen years, was dangerously affected. Another individual, at the adult age, was a month convalescent, his appetite had returned, and he had dined heartily at noon. He became suddenly anasarcaous in a few hours afterwards, was seized with convulsions, for which he was bled, cupped, his head shaved and leeches, his bowels freely purged with croton oil, mustard cataplasms applied to his feet, and in spite of the most active treatment, he was dead at two o'clock the following morning.

I was once requested to attend a coroner's inquest, held on the bodies of two children, under three years of age, who died sud-

denly. But it was rumoured they had been poisoned. It was proved in evidence that they had been seen in apparent health in the morning, though dead in the evening. The bodies were carefully examined, and the morbid appearances were a dark redness about the lower part of the pharynx, which extended into the wind-pipe about an inch and a half in the other. There was great cerebral congestion in both, and no vestige of eruption on the skin. On inquiring if there were other children in the family, and whether they were well, I was informed that there was one, and that it was ill. On examination it presented the usual symptoms of scarlatina. It was the youngest of the three. I cannot state whether it recovered or died, as I did not attend it. Observation has proved that young infants may labour under the simple or mild form of scarlatina, and older ones of the same family will be attacked with the anginal or malignant form of the disease. The jury found a verdict, that the children died a natural death.

Now these, and numerous other cases I might mention, confirm in my mind the opinions of Sydenham, Huxham, and others, as to the fatality of this disease.

Some of the German writers, among whom is Hahneman, extol belladonna, as a preventive of scarlatina. The medicine is employed as follows :

R. Extracti Belladon. gr. ij ; Aquæ destillatæ ℥j : Misce.

The dose is from one to five drops four times a day, for children under six years of age, and to those who are older, from six to ten drops.

I have not employed this remedy in a sufficient number of cases to justify me in offering an opinion of its value. Dr. Maemichael has written in favour of it; but I am not aware that any other British physician has found it a prophylactic.

GASTRITIS.—INFLAMMATION OF THE STOMACH.

SYMPTOMS.—An acute fixed pain and sense of burning heat in the region of the stomach; sudden and great prostration of strength; wiry, hard, contracted, and rapid pulse, which soon becomes small, irregular and intermittent; extreme anxiety; frequent hiccup; violent and painful vomiting; the pain is aggravated by the taking in of food, and by pressure; great thirst, and desire for cold drinks; vomiting; sometimes an erysipelatous eruption in the fauces, extending along the alimentary canal, [tongue red at its point and margins, and finally becoming parched and glazed.]

The disease terminates either

In resolution :—when the pulse becomes more soft and full, and the other symptoms gradually disappear.

In gangrene :—marked by a violent exacerbation of the symp-

toms, followed by a sudden cessation of heat and pain; the pulse becoming more rapid and intermitting; the utmost prostration of strength, flaccidity and coldness of the præcordia, delirium, hiccup, cold extremities; death.

In suppuration.—preceded by a remission of pain; increased sense of weight and anxiety; severe rigors.

CAUSES.—The sudden application of cold to the body generally, to the extremities, or to the stomach, as in drinking cold fluids while the body is preternaturally warm; the repulsion of eruptions; the operation of acrid or poisonous substances taken into the stomach; the translation of gout and other diseases; indigestible food; violent passions of the mind; abuse of spirituous liquors; or the ingress of acrid bile, as in common or spasmodic cholera.]

When the symptoms are slight, the mucous membrane of the stomach is effected; but in intense gastritis all the coats of the organ are implicated. The former is termed *erythema* of the stomach. A blow on the stomach will so injure the large ganglionic nerves beneath this organ, as to communicate the shock to the brain, and induce universal paralysis and instant death without causing any sign of inflammation or lesion.

DIAGNOSIS.—*From enteritis.*—By the seat of the pain ascertained by pressure; by the peculiar sense of burning heat in the epigastric region; by the more severe vomiting and hiccup.

PROGNOSIS.—*Favourable.*—About the third or fourth day the pulse becoming more soft and full, and diminishing in frequency; the pain gradually ceasing; the urine depositing a sediment; diarrhœa.

Unfavourable.—The disease continuing after the expiration of a week, with severe rigors, followed by a sense of weight in the region of the stomach. The symptoms marking the accession of gangrene.

Anatomical Characters.—The external membrane of the stomach is usually natural; sometimes this viscus is distended with air; but occasionally it is contracted. The mucous membrane of the stomach is sometimes studded with red dots, or covered by patches, arising from the effusion of blood into the substance of the membrane itself; at other times a uniform redness is diffused over the whole extent, being particularly conspicuous, and of a deeper shade, around the cardia and pylorus.

Occasionally the redness follows the course of the blood-vessels, which are injected and arborescent; this colour is of a vivid red or of a darker shade, almost brown; both shades are alternately mixed or intimately blended one with the other. In some cases an effusion of gas takes place beneath the mucous membrane.

Gangrene is rarely met with; ulceration is also unusual, and seldom penetrates as far as the muscular coat. When the mucous follicles are affected, they resemble small reddish pimples.

When contraction of the stomach accompanies inflammation, the creases of the mucous coat are conspicuous, and of a deeper tint than the surrounding parts.

The exterior of the small intestines usually appears healthy, but when the inflammation is intense the redness of the subjacent mucous coat is visible through its thin parietes; they may be contracted or distended.

The redness of the internal coat is interrupted suddenly in various parts, and is less deeply marked in the duodenum than at the further extremity of the intestine.

If the inflammation be slight, the valvulae conniventes are alone affected, the intervals which separate them appearing perfectly natural. In a more advanced degree, the vessels are strongly injected, and we perceive patches of a paler or deeper red; the membrane is covered with an adhesive mucus. The muscular and serous coats seldom participate in the disease.

Gangrene of the intestine is of very rare occurrence; when it takes place the intestine becomes black, dull, and friable, and emits a gaseous odour. Ulceration, on the contrary, is very common, and is found in the ileum, particularly in the neighbourhood of the ileo-cæcal valve: it is in general confined to the mucous coat, but sometimes extends to the other tissues, and not unfrequently produces perforations through the intestine.

The edges of the ulcers are sometimes quite perpendicular, and at other times rugous, thick, and irregular; their circumference is red or pale; their floor is often formed by the muscular coat.

During the process of cicatrization their edges sink down, approach each other, and unite by a little eminence, which in the course of time gives place to a small depression.

If the ulcer be large, the cicatrix is formed by a whitish or rosy pellicle, and if it be still more considerable, the mucous membrane is puckered and drawn in, so that the intestine may be contracted in this part.

Thickened patches or excrescences are frequently met with in the small intestines, formed of a white, greyish, or red substance, possessing considerable tenacity, and chiefly occupying that portion of the gut which is placed next the ileo-cæcal valve, the rest of the intestine generally remaining sound. These occur most frequently in young subjects.

The mucous follicles resemble so many pimples, hard and depressed in the centre, which afterwards soften and suppurate, or appear in the form of brownish patches, circumscribed and without swelling. The invaginations which are occasionally met with in enteritis are formed by the introduction of the superior portion of the gut into the inferior; or the reverse takes place, which is much more unusual.

TREATMENT.—*Indications.*—To reduce the inflammatory action in the stomach, and diminish its irritability:

1. By general and topical blood-letting.
2. The use of the warm bath ; even until fainting come on.
3. Fomentations to the abdomen.
4. Blisters [or warm terebinthinate epithems] to the region of the pain.
5. By keeping the bowels open with large emollient clysters ; [and purgatives by the mouth should be avoided.]
6. By mucilaginous diluents in very small quantities and often, especially linseed tea, barley-water in which gum acacia is dissolved.

[Mittatur sanguis ex largo vulnere donec æger pallescat vel languescat.

Admoveantur hirudines xx epigastrio, et postea imponatur cataplasma sinapis, fœtus terebinthinæ, vel emplastrum lyttæ.

The patient should drink freely of cold or iced water, and cold applications may be placed over the epigastrium. Small doses of morphia or the other direct sedatives are also useful adjuvants.]

7. By saline diaphoretics.

R. Potassæ Nitratis gr. vj ; Pulveris Tragacanthæ Compositi gr. xij ; Aquæ destillatæ fʒxij ; Syrupi Aurantii fʒj : Fiat haustus.

R. Potassæ Subcarbonatis gr. xx ; Succî Limonis q. s. ad alkali saturandum ; Aquæ destillatæ recentis fʒvj ; Potassæ Nitratis gr. viij ; Syrupi fʒj : Fiat haustus.

DYSPEPSIA.—INDIGESTION.

SYMPTOMS.—Want of appetite ; distention of the stomach ; flatulent eructations ; general debility, languor, and aversion to motion ; dejection of spirits ; spasmodic pains in the region of the stomach ; nausea ; acid eructations ; sometimes rumination ; sense of oppression and sinking after eating ; heart-burn ; irregularity of appetite ; either obstinate costiveness, or diarrhœa ; small low pulse, quickened upon the slightest exertion ; palpitation ; flushed countenance after a meal ; the tongue dry, and generally white in the morning ; pale urine, [depositing a red (lithic acid) or a white sediment (the phosphates), with an oily pellicle on the surface] ; cold extremities ; sallow countenance ; various affections of the senses ; depraved vision, &c. ; pain in the head and breast ; dry skin ; sometimes, however, profuse diaphoresis or salivation ; disturbed sleep, frightful dreams, hectic fever, symptoms of hypochondriasis.

CAUSES.—Everything which debilitates the system in general, or the stomach in particular ; narcotics, as opium taken in immoderate quantities, spirituous liquors, tea, tobacco, &c. ; the frequent use of warm relaxing liquids ; sedentary life ; imperfect mastication ; certain depressing affections of the mind ; too flatulent or farinaceous a diet ; excessive evacuations ; the too power-

ful operation of emetics and purgatives; diseases of the liver; hysteria; hypochondriasis; aliment taken into the stomach in too large quantities; excess in venery; exposure to moist and cold air; deficiency in the secretion of bile, saliva, or gastric juice.

PROXIMATE CAUSE.—Disordered functions of the digestive system.*

DIAGNOSIS.—*From hypochondriasis.*—See Hypochondriasis.

TREATMENT.—*Indications.*—I. To remove those causes which are obvious and continue to operate.

II. To palliate urgent symptoms.

III. To restore the tone of the stomach, and prevent the recurrence of the disease.

The first and most important step to be taken in the cure of dyspepsia is to point out to the patient the indispensable necessity of removing such habits and pursuits as may have tended to give rise to the disease, and continue to aggravate it: until this has been effected, remedies will be found of no avail.

The cure will then consist,

1. In the occasional exhibition of a gentle emetic, or, what is preferable, an aperient, to remove the crudities from the stomach and bowels, indicated by nausea, sense of weight and oppression, and eructations of imperfectly digested food, and costiveness.

2. In correcting morbid acidity, by alkalis and absorbents alone, or united with laxatives.

R. *Liquoris Potassæ* fʒij, *Liquoris Calcis* fʒvjss; [*Magnesie Calcinate* ʒj:] *Misce*: ejus capiat æger cochleare magnum bis in die ex poculo juseuli bovini.

R. *Misturæ Cretæ* fʒjss; *Spiritus Myristicæ* fʒij; *Syrupi Zingiberis* fʒj; *Fiat haustus mane seroque sumendus.*

R. *Potassæ Subcarbonatis* ʒjss; *Myrrhæ Contusæ* ʒj; *Aloës Socotrine* ʒjss; *Crocī* ʒss; *Aquæ Destillatæ* Oj; *Coque ad* ʒxij; et liquori colato adde—*Tincturæ Cardamomi Compositæ* ʒiv; *Syrupi Zingiberis* fʒjss; *Sit dosis cochlearia duo magna bis die.*

[When the fluid rejected by the stomach is saline, we should employ the mineral acids: the sulphuric aromatic acid is an excellent remedy in such cases; and we are indebted to Dr. James Johnson for much excellent information on the management of this disease. See his *Essay on Morbid Sensibility of the Stomach, &c.*]

Very similar to this is the decoctum aloes compositum; two spoonful of which may be taken once or twice daily.

R. *Sodæ Subcarbonatis Exsiccate* ʒj; *Saponis Duri* ʒij; *Pulveris Rhei* q. s.; *Fiat massa in pilulas xxxvj. vel mediocres dividenda, quarum capiat æger tres bis terve in die.*

* This disorder may continue for ten or twenty years and be removed; and none of its symptoms may be present in scirrhus of the stomach, or disease at the pylorus.—*Graves' Dublin Journal*, 1832. *Ryan's Medical and Surgical Journal*, 1832, p. 666.

R. Sodæ Subcarbonatis Exsiccatae, Extracti Anthemidis āā 5j ; Pulveris Rhei q. s. : Fiat massa in pilulas xxxvj. distribuenda : sit dosis duæ vel tres bis terve in die.

3. In obviating costiveness by warm and gentle laxatives, and particularly by the exhibition of small doses of the oxides of mercury and the submuriate, when bile is not secreted in sufficient quantity to procure healthy excretions, or when its quality is altered so as not sufficiently to stimulate the bowels. [The compound calomel pill or small doses of blue pill are often beneficial.]

R. Pilulæ Hydrargyri gr. iv : Fiat pilula omni nocte capienda.

R. Magnesiae Sulphatis 5j ; Infusi Rosæ f5x ; Tincturæ Aurantii f5j : Fiat haustus mane sequente sumendus.

R. Hydrargyri Submuriatis, Sulphureti Antimonii Præcipitati, singulorum gr. ss ; Confectionis Rosæ Caninæ q. s. : Fiat pilula omni nocte sumendus.

R. Radicis Rhabarbari Contusæ 5iij ; Sodæ Carbonatis 5jss ; Corticis Cinnamomi Contusi 5j ; Aquæ Ferventis f5x : Soda et rheo prius ritè contritis, in vase idoneo macera, et liquorem cola, dein adde—Tincturæ Aurantii f5j ; Sumantur cochlearia tria singulis auroris.

R. Extracti Aloes Socotrinæ, Pulveris Rhei, āā 5jss ; Saponis Duri 5ss ; Syrupi Zingiberis q. s. : Fiat massa in pilulas l. dividenda, quarum sumat duas vel tres pro re nata.

R. Pulveris Rhabarbari gr. xij ; Hydrargyri Submuriatis gr. j ; Pulveris Zingiberis gr. v : Fiat pulvis apericus.

R. Extracti Colocynthis Compositi 5j ; Pilulæ Galbani Compositæ 5ij ; [Olei Menthæ Piperitæ ℥ iv :] Fiant pilulæ xvij quarum sumat tres pro re nata.

R. Pilulæ Aloes cum Myrrha 5j ; Extracti Gentianæ 5ss : Fiant pilulæ xvij quarum sumat tres pro re nata.

R. Pulveris Aloes Compositi 5j, Extracti Taraxaci 5jss ; Fiant pilulæ xxx. quarum sumat tres pro dosi.

R. Pulveris Aloes Compositi 5j ; Ferri Sulphatis 5j ; Pulveris Rhei 5ss ; Balsami Peruviani q. s. ; Fiant pilulæ xxxvj quarum capiat ager duas nocte maueque.

4. In relieving pain by demulcents, carminatives, antispasmodics, and opiates.

R. Spiritus Ætheris Sulphurici f5ss ; Tincturæ Opii ℥ xv ; Aquæ Cinnamomi f5xij : Misce pro haustu in dolore sumendo.

R. Pulveris Tragacanthæ Compositi 5j ; Tincturæ Cardamomi Compositæ f5ss ; Confectionis Aromaticæ 5j ; Aquæ Menthæ Piperitæ f5vij ; Syrupi Zingiberis f5ss : Misce : ejus sumat ager cochlearia tria magna urgenti flatu vel dolore.

R. Magnesiae 5j ; Liquoris Calcis 5vij ; Tincturæ Cardamomi 5ss : Fiat mistura, ejus sumat ager cochlearia tria magna in dolore.

R. Confectionis Aromaticæ 5j ; Spiritus Ætheris Sulphurici Compositi f5iv ; Mist. Camphoræ 5vij ; Syrupi Zingiberis f5ss : Misce : sanantur cochlearia tria parva in dolore.

5. In removing diarrhœa, should it accidentally occur, by absorbents; and if the fæces be of an unnatural clay-like or whitish colour, by mercury, especially the submuriate.

R. Confectionis Aromaticæ $\overline{3}$ ss; Misturæ Cretæ f $\overline{5}$ x; Tincturæ Opii \mathfrak{m} x: Fiat haustus urgenti diarrhœa capiendus.

6. In restoring the tone of the stomach by bitters combined with astringents and aromatics; the mineral acids; chalybeates; by keeping the extremities warm; cold bathing; by the use of mineral waters, more particularly those of Buxton and Seltzer; by a diet consisting of light animal food, carefully avoiding the more indigestible foods and flatulent vegetables; by abstaining from malt liquor, and employing soda water, weak brandy and water, or water mixed with the least acescent wines, as Madeira or Sherry, as common drink; and lastly, by warm clothing, more especially about the feet and legs.

R. Quassiæ Rasuræ $\overline{3}$ j; Corticis Aurantii Concisæ $\overline{5}$ jss; Aquæ Ferventis Oj: Stent in vase aperto per horæ spatium, et cola. In-fusi colati capiat æger cochlearia quatuor bis quotidie.

The various bitter infusions described in the pharmacopœias must be successively employed in obstinate cases; and the combination of quinine with purgatives is highly advantageous. The chalybeate preparations are also valuable remedies.

[Dyspeptics should masticate their food properly, take a small quantity of fluid at each meal, exercise in the open air, refrain from business, go into the country, avoid late suppers, and sleep on a hard mattress.

When acute or chronic gastritis is present, the patient cannot tolerate warm or spirituous fluids—tea, coffee, ardent spirit diluted with warm water, aggravates the symptoms, while cold water, porter, ale, &c. are preferred. These distinctions are plain, and may be depended upon in practice. I have attended to them in hospital and dispensary practice for many years, and always found them correct. I have verified them in several cases daily during the last sixteen years. A vast number of dyspeptics apply at public institutions, most of whom are relieved by carminatives and tonics, though the localists would declare that they laboured under gastritis. I find that a large proportion of such patients are relieved by the above-mentioned remedies, as many medical students can attest. They are ordered aperient pills or mixtures, and the following formula advised by the late celebrated Dr. James Gregory of Edinburgh. This is designated the Mistura Gregorii at the Metropolitan Free Hospital, and at the Western Dispensary, Westminster:

R. Aquæ Menthæ Piperitæ Oj; Rhei Pulveris $\overline{3}$ j; Magnesiæ Calcin. $\overline{5}$ iss; Pulv. Zingiberis $\overline{9}$ j: Dosis $\overline{3}$ ss ter quaterve in die.

In many cases of individuals of the laborious classes, this mixture is not sufficiently stimulant and carminative, and I make it

more so by the following addition, and designated the formula, for the sake of brevity,

Mistura Gregorii cum aliis.

R. Mistura Gregorii ʒvj; Tinct. Capsici; Sp. Ætheris Sulphur; Tinc. Opii aa ʒj; Dosis sem-uncia ter quaterve quotidie.

This mixture is very much sought after by the lower classes. It is preferable to the fluids supplied in dram shops, and differs but little from the aromatic and spiced tinctures prescribed in the pharmacopœias of all countries. The poor as well as the affluent are relieved by this class of medicines. Gastrodynia, or gastralgia, is speedily removed by it.]

PYROSIS.—THE WATER-BRASH.

SYMPTOMS.—The disease usually comes on in the morning or forenoon, when the stomach is empty; commencing with ardent pain at the pit of the stomach, with sense of constriction, as if that organ were drawn towards the back.—The pain is increased by an erect position, and therefore the body is bent forward.—After a short time an eructation takes place of a thin watery fluid in considerable quantity; sometimes of an acid taste, often quite insipid.—The eructation is frequently repeated, and at length gives relief to the pain, and puts an end to the fit.

CAUSES.—*Predisposing.*—It principally attacks those of a middle age; females more frequently than males; and generally the unmarried; people in low life, who live much on milk and a farinaceous diet, rather than those in better condition; fluor albus.

Exciting.—Application of cold to the lower extremities; violent emotions of the mind.

Proximate.—Spasm of the muscular fibres of the stomach, its blood-vessels and exhalents.

TREATMENT.—Pyrosis requires the removal of the exciting causes, and the exhibition of antispasmodics, especially æther; opium, musk, castor, volatile alkali, nux vomica, the smoking or chewing of tobacco, and the occasional use of the mineral alkali with absorbents, which should be given as recommended in the treatment of dyspepsia. [Nitrate of bismuth was much lauded at one time, but is now seldom employed.]

ENTERITIS.—INFLAMMATION OF THE INTESTINES.

SYMPTOMS.—Acute pain in the abdomen, increased upon pressure, and shooting in a twisting manner around the umbilicus; obstinate costiveness; tension of the abdomen [and flexion of the inferior extremities;] tenesmus, or vomiting, as the inflammation happens to be in the superior or inferior portion of the intestine; the vomiting is generally bilious, or dark, fetid, and in some instances stercoraceous; pyrexia, frequent, hard, contracted pulse,

great prostration of strength, high-coloured urine. [The disease may be seated in the mucous, muscular, or peritoneal tunic of the intestine.]

Its terminations are,

In resolution,—known by a *gradual* diminution of the symptoms, and a free evacuation of the bowels.

Ulceration,—which is very uncommon, and only known by the febrile symptoms remitting, by occasional pains and shiverings, purulent evacuations from the bowels, and tabes.

Gangrene,—marked by *sudden* cessation of pain and anxiety, the patient becoming calm and collected, while the countenance assumes a livid, and indescribably cadaverous hue; suppression of urine, hiccup, subsultus tendinum, delirium, convulsions, death.

CAUSES.—All the causes inducing gastritis, incarcerated hernia, volvulus, colic, indurated feces, long-continued obstinate costiveness.

DIAGNOSIS.—*From gastritis.*—See Gastritis.

From colic.—By the one being accompanied with fever, the other not; by the peculiar pulse above described; by the pain in enteritis being increased by pressure, and in colic alleviated.

From hepatitis.—See Hepatitis.

PROGNOSIS.—*Favourable.*—Gradual remission of pain and other symptoms; the abdomen becoming less tender to the touch; the pain changing its seat, and not confined to a particular part; the belly no longer obstructed, a warm equable sweat, the urine depositing a sediment, the pulse becoming more natural.

Unfavourable.—The symptoms continuing, with occasional shivering or weight in the parts, which indicate the formation of an abscess. But the most unfavourable, and by no means uncommon termination is in gangrene. This event, in some cases, takes place in a few hours from the commencement of the disease; it is usually marked by a sudden cessation of pain, the lips become livid, and the countenance Hippocratic; the pulse sinks, and the extremities become cold.

TREATMENT.—*Indications.*—I. To allay the inflammatory action in the bowels.

II. To keep the bowels open.

These *indications* will be answered:—

1. By general and topical blood-letting, regulated according to the age, extent, and period of the disease, as in the other phlegmasiæ.

2. By the warm bath and fomentations.

3. By the frequent exhibition of purges.

[Pertundatur vena brachii et detrahatur sanguis pleno rivo usque ut liquerit animus.

Applicentur hirudines xx vel xxx abdomini, et postea foveatur abdomen, oleo Terebinthine calido.

Leeches are also applied round the anus.]

R. Olei Ricini $\mathfrak{f}\mathfrak{z}\mathfrak{j}$; Aquæ Hordei $\mathfrak{f}\mathfrak{z}\mathfrak{ij}$: Fiat haustus.

R. Olei Ricini $\mathfrak{f}\mathfrak{z}\mathfrak{jss}$; Vitellum Ovi Unius: His rite terendo subactis, adde paulatim; Aquæ Menthæ Viridis $\mathfrak{f}\mathfrak{z}\mathfrak{v}$; Syrupi Aurantii $\mathfrak{f}\mathfrak{z}\mathfrak{ss}$: Ut fiant mistura aperiens, de qua capiat æger cochlearia tria omni bihorio donec alvus soluta sit.

R. Magnesiae Sulphatis $\mathfrak{f}\mathfrak{z}\mathfrak{vj}$; Mannæ Optimæ $\mathfrak{z}\mathfrak{ij}$; Aquæ Destillatæ $\mathfrak{f}\mathfrak{z}\mathfrak{xij}$: Fiat haustus.

R. Potassæ Tartratis $\mathfrak{z}\mathfrak{ij}$; Mannæ Optimæ $\mathfrak{z}\mathfrak{j}$; Aquæ Destillatæ $\mathfrak{f}\mathfrak{z}\mathfrak{vj}$: Misce: cujus sumantur cochlearia tria magna tertia quaque hora, vel pro re nata.

R. Antimonii Tartarisiati gr. j; Magnesiae Sulphatis $\mathfrak{z}\mathfrak{j}$; Aquæ Destillatæ $\mathfrak{f}\mathfrak{z}\mathfrak{vjss}$; Syrupi Aurantii $\mathfrak{f}\mathfrak{z}\mathfrak{ss}$: Solve ut fiant mistura cathartica:—sumantur cochlearia tria magna quolibet bihorio donec alvus ample purgaverit.

If these purges fail in opening the bowels, the more active must be employed, and also purging clysters in large quantities. [A drop of croton oil may be applied to the tongue, or two drops may be used in an enema.] See formulæ for aperient mixtures and pills. p. 76.

[When the vomiting is incessant and invincible, there is reason to suspect intussusception, and then six or eight ounces of quick-silver should be swallowed, and this remedy is perfectly safe in cases of vomiting which defy all ordinary remedies. The late Dr. Babington used it successfully.

4. By saline diaphoretics with mucilaginous drinks similar to those ordered in gastritis, See p. 320. [Dover's powder is a valuable remedy.]

Some practitioners administer opium in the early stage of the disease, and speak decidedly of its good effects in abating the pain and inflammation, and rendering the subsequent use of cathartics more sure and salutary; but the author's experience induces him to say it is a dangerous medicine, so long as any inflammatory action is going on, and especially before the free solution of the bowels. [The late Dr. Armstrong, Dr. Kirby of Dublin, and Mr. Bates recommend large opiates, by the mouth and rectum, in all abdominal inflammations as the best remedy. Dr. A. gave three grains of opium after the first bleeding, a grain after the second, and a grain after the third bleeding, an interval of six hours being left between each; while Mr. Bates advises a large opiate by the mouth, and $\mathfrak{z}\mathfrak{j}$ or \mathfrak{ij} with starch by the rectum; he relates numerous successful cases. I have observed narcotism induced by this plan, in abdominal and thoracic inflammation, but the disease proved fatal. Mercurial ptyalism is the best remedy in abdominal inflammations. The French apply blisters and sinapisms to the feet.

Enteritis may become chronic, and in such case the antimonial

ointment, or a blister should be repeatedly applied to the abdomen, or lower extremities.

There is great danger of relapse after convalescence by exposure to cold, or by improper food.

When infants are affected, there is generally gelatinous softening of the intestines succeeded by perforation.

When the mucous membrane of the stomach and intestines is affected, the disease is called gastro-enteritis.

[GASTRO-ENTERITIS ACUTUS.]

This disease is by no means so common in an acute form as the localists and Broussaists would lead us to imagine. When it exists it is characterised by the symptoms of gastritis and enteritis, and requires the same treatment.

The disease may assume a chronic form, and is thus described by M. Martinet.

GASTRO-ENTERITIS CHRONICUS.

SYMPTOMS.—This occurs as a consequence of the former disease, or supervenes in a very slow and gradual manner, with symptoms more mild, but in other respects resembling those of the acute form. There is epigastric uneasiness; often a sensation is perceived as if a transverse and painful band extended from one side to the other, and particularly evident at the right; it may be continuous, interrupted, or remittent, and is increased after meals, more or less, according to the quantity and quality of the food, and is exasperated by the depressing passions.

The pain is gnawing, pungent, and burning, accompanied by a sense of constriction in the œsophagus, or of difficulty of deglutition and respiration, with sensation of compression along the base of the thorax, or in some part of it only; it is sometimes attended with a dry cough; occasionally the pain exists solely in the epigastric region, which is then incapable of supporting the slightest pressure. Usually the patient experiences a dislike for food; but now and then he has an extraordinary appetite, which, however, soon gives place to a distaste for every sort of food.

The digestion is imperfect, and accompanied by bitter acrid eructations; thirst and a sense of epigastric fulness are not unusual. The ideas become confused, and the head heavy; dulness, somnolency, and a dislike to movements of any description, take place.

The skin is hot, particularly in the palms of the hands; the pulse is tense, and generally frequent: vomiting takes place when the stomach is overloaded or much irritated; there is habitual and obstinate constipation, giving place occasionally to diarrhœa of short duration.

In general the tongue is small, and red at its tip and edges, or even over all its surface, but in other cases it is merely dotted with red specks, or covered with a dry mucous coat. The breath is fetid; the heat and thirst are augmented after meals; the pulse becomes frequent towards evening; a bitter taste is complained of in the morning; the complexion is sallow.

The patients become sad, uneasy, low-spirited, distrustful, and peevish, and suffer hallucinations, errors of judgment, and other mental disorders, particularly if they be of the nervous temperament; the countenance is furrowed, its expression altered, and its colour changed to a pale sallow; whilst the cheeks remain red, or become livid; the muscular powers are weakened, and there is the greatest objection to taking exercise. The skin adheres to the bones and muscles, and insinuates itself into their interstices, and exchanges its natural colour for that of an obscure red or ochery yellow.

Such are the symptoms of this disease: but they are never all united in the same case: indeed we often meet with only one or more of them, variously combined, so as to form almost innumerable varieties of this perplexing affection.

It may be confounded with peritonitis, scirrhus of the stomach, hypochondriasis.

Anatomical Characters.—The left end of the stomach is frequently found thinned, and admits of being torn with the greatest facility. The mucous coat, softened, varies in colour from a white or grey to the deepest shade of red; scraped with a knife it is easily detached, in the form of a pulpy matter; occasionally it presents slight erosions.

If the vessels be injected, the blood appears of a bluish tint, and patches, varying from violet, to the darkest brown, are seen on the internal surface; the lining membrane is usually thinned, particularly towards the fundus, so much so as sometimes to occasion perforations with irregular edges.

As we proceed from this part the mucous membrane becomes thick and red, which arises, in some cases, from a varicose state of its vessels. Ulcerations are very common, especially near the pylorus, where they penetrate through the coats of the viscus; occasionally it becomes of a slate colour or entirely black, without in any degree changing the consistence of the membrane.

The small intestines are generally pale externally, and sometimes contracted or almost entirely obliterated. Ulcers are very common in the jejunum and ileum; they are more extensive and deep than in the acute form of the disease; finally the mucous coat changes to a bluish slate colour, nearly analogous to that of the stomach itself.

TREATMENT.—Low diet, cold mucilaginous drinks, leeches and counter-irritants to the abdomen, depletion if fever exists, warm bath, and when typhoid symptoms supervene, the treatment for

typhus is required, see p. 32. In feeble, lymphatic, or sluggish habits, the use of mucilaginous and demulcent drinks and warm baths are injurious; and in such cases bitters, tonics, and chalybeate waters are beneficial. When diarrhœa is urgent, clysters of starch \mathfrak{z} ij, with T. Opii \mathfrak{m} x—xv, three or four times daily, are very beneficial. Barley-water, sago, arrow-root, beef-tea, chicken-broth may be allowed in chronic cases.

[PERITONITIS—INFLAMMATION OF THE PERITONEUM.

Pyrexia, pain and tenderness of the abdomen increased by pressure, and the erect posture, with the peculiar signs of other abdominal inflammations.

SYMPTOMS.—The pain may commence in any part of the abdomen, as the peritoneum covers all the viscera in that and the pelvic cavity; at first is confined to a certain spot, but soon extends, more or less rapidly, all over the abdominal parietes, and is in general so acute that the pressure of the bed-clothes is intolerable, though in other instances it is so slight as to escape notice. It is also increased by pressure. The surface of the abdomen is hot and tender; the pulse is in general small, hard, and contracted, though sometimes full and soft; the countenance is expressive of anguish; the sufferer lies on his back with the thighs drawn upwards and almost flexed on the abdomen; the bowels are constipated; the urine scanty and high coloured; the tongue is white and covered with mucus, is more or less dry, becomes brown, its edges and tip being red; the respiration is difficult, particularly during inspiration, and is chiefly thoracic, effected by the ribs, as the diaphragm and abdominal muscles cannot act without increasing the pain. When the disease advances without control, it often terminates fatally within twenty-four or forty-eight hours, and death is preceded by typhoid symptoms, great prostration of the vital powers, sudden cessation of pain, sharpened countenance, distension of the abdomen by gas or effusion, vomiting of a coffee-coloured fluid, cold extremities and coma.

When the disease attacks puerperal women, the pain commences in the region of the womb, the lochia is diminished and speedily suppressed, and the breasts become collapsed, and the secretion of milk ceases. In these and ordinary cases, there is an effusion of serum (ascites) or purulent matter into the peritoneal cavity, or the abdomen becomes suddenly distended with gas.

When peritonitis occurs in consequence of perforation of the intestine, it is rapid and violent in its progress, and speedily causes death. It is very remarkable, that in transfixion of the bowels by bayonet and sabre wounds, in which the intestines are perforated in several parts, and blood and faeces escape into the cavity of the abdomen, there is but a slight degree of peritonitis, and re-

every often happens.—See article “Wounds” in Professor Cooper’s Surgical Dictionary, Hennen’s Military Surgery, Blundell’s Experiments on Abdominal Surgery, &c.

Morbid Appearances.—Numerous red spots are discovered on the peritoneum, penetrating its whole thickness, and separated one from the other by parts of the membrane, retaining their natural colour; in some cases the serous membrane is injected or thickened.

Inflammation more generally occupies the covering of the intestines, than the part which lines the walls of the abdomen. False membranes, varying in thickness and softness, according to the duration of the disease, are found spread over the peritoneum; these insert themselves into the intervals of the intestines, and unite them one to the other. The cavity of the abdomen is filled with a whitish milky liquid, of a very fetid smell, containing suspended a great number of small albuminous streaks of a white, greyish, or red colour; the contained fluid sometimes consists of a bloody serosity, more or less limpid, particularly if the disease has lasted but a very short time, death having quickly supervened.

Peritonitis sometimes also shows livid patches, and real gangrenous spots. In the chronic form the albuminous concretions possess more solidity, and these bands which unite the intestines often become cellular; finally, peritonitis often gives rise to hard, semi-transparent granulations, and the serosity which then exists in the cavity is limpid, and contains a few albuminous streaks; it resembles whey, slightly turbid.

CAUSES.—Exposure to cold and fatigue; constipation, contusions, wounds, and surgical operations; lithotomy, incision for hernia, fistula in ano, improper use of obstetrical instruments.

TREATMENT.—The same as in enteritis, and, in addition, the application of warm turpentine to the abdomen after the leeching, and the induction of mercurialization by scruple doses of calomel with a fourth of a grain of opium every second hour in bad cases. Calomel is generally given in smaller doses, but I have administered it as here recommended in puerperal peritonitis, with great success. The following combination is also highly valuable:

R. Olei Ricini $\overline{3j}$; Olei Terebinthæ $\overline{3iv}$; Mucilaginis Acaciæ, Syrupi Simplicis \overline{aa} $\overline{3ij}$: Fiat haustus tertiis horis si opus sit repetendus.

The mucous membrane of the intestinal tube is torpid, as is proved by constipation, and hence it may be made the seat of powerful revulsion. Hence it is now common to exhibit tartarized antimony in large doses, as in pneumonia, when there is no vomiting or gastro-intestinal irritation present.

Unless our treatment is energetic, albuminous adhesions, serous effusion, or gangrene, will speedily supervene.

When peritonitis proceeds from a penetrating wound of the abdomen, the case is formidable, though not invariably fatal.

As soon as tympanitis or meteorism appears, we should employ the following enemata :

R. Aquæ Hordei ʒx ; Olei Menthæ Piperitæ miv ; Olei Terebinthinæ ʒj ; Tincturæ Fætidæ ʒiij : Fiat enema tertiis vel quartis horis injiciendum.

Carminatives may also be administered by the mouth, and the elastic tube proposed by Dr. O'Beirne is to be introduced into the colon, by which the accumulated gas will rapidly escape, and allow the diaphragm to descend, and the respiration to become free, which is most important to the treatment.

When effusion has taken place, and the febrile symptoms abated, we must resort to those remedies capable of exciting absorption, which will be discussed in the article Ascites.

Peritonitis may become chronic, and continue for weeks or months, like all other inflammations of a chronic kind, and will be relieved by wearing flannel next the skin, a bandage round the abdomen, and other remedies which must occur to every educated medical practitioner. For an account of chronic peritonitis, see an article of mine in the *Lond. Med. and Surg. Journ.* 1831, vol. i.

Puerperal peritonitis is treated in the same manner, and is not malignant puerperal fever, as the superficially informed so generally imagine. The latter affection is proved beyond all doubt to depend upon uterine phlebitis, and the absorption of pus into the system. (See *Manual of Midwifery*, third edition, 1831.) In that disease we can rely on mercurialization, opiates, and the internal and external use of oil of turpentine. Nine-tenths of the most renowned obstetricians of these and other countries attest the fact, and unanimously deny that copious depletion, either general or local, is an effectual remedy for the disease.

When antiphlogistic remedies fail in puerperal or ordinary peritonitis, a free use of mercury may effect a cure even in the most hopeless cases, when coffee-coloured vomiting is present.* A drachm of strong mercurial ointment is to be rubbed into each axilla alternately every quarter of an hour and one of the following powders exhibited as directed :—

R. Hydrarg. Submur. ʒj ; Camphoræ Pulveris gr. xv ; Morphiæ Acetatis gr. ss. In chartulas tres divide, detur una, singulis, secundis vel tertiis horis, donec ptyalismus cietur.

Dr. James Johnson was the first who exhibited scruple doses of calomel in diseases of India ; and as much as 500 grains of this medicine have been administered in successive doses in puerperal fever. (See *A New Practical Formulary of Hospitals, &c.* Second Edition, 1836.) Dr. Elliotson, and Dr. Graves have subsequently advised mercurialization as the most efficient treatment of inflammation of serous membrane.]

* I have treated such cases successfully with Dr. Kenny, of the Strand, Mr. Appleton, of High Holborn, and others.

DYSENTERIA.—CÆCO-COLITIS.—DYSENTERY.

SYMPTOMS.—The disease sometimes comes on with cold shiverings and other symptoms of fever; at others, the local affection is first perceived; costiveness; unusual flatulence in the bowels; severe griping, [or tormina;] frequent inclinations to go to stool; tenesmus; [cramps of the limbs;] loss of appetite; nausea; vomiting; febrile heat, and frequency of pulse; frequent discharge of a peculiarly fetid matter from the anus, varying in appearance, being sometimes pure mucus, or mucus mixed with blood; pure unmixed blood; pus, or a putrid sanies, proceeding from ulcerated or gangrenous parts; and often films of a membranous appearance, or small sebaceous masses, floating in a large quantity of liquid matter. Masses of indurated faeces [or scybala] are likewise sometimes passed by stool. Great emaciation and debility; quick and weak pulse; sense of burning heat, and intolerable bearing down of the rectum; hiccup; and not unfrequently a fatal termination ensues. [In some cases a considerable portion of mucous membrane is evacuated by stool, which is a bad sign, though recovery may happen in such cases.]

CAUSES.—*Remote.*—A specific contagion. All those causes capable of inducing spasm and ulceration; much moisture, succeeding quickly to intense heat, [especially in autumn; excessive use of spirits;] fatigue; unwholesome and putrid food; noxious exhalations and vapours; vitiated intestinal secretions, as unhealthy bile, pancreatic and enteric juices.

Proximate.—Spasmodic constriction [or inflammation] and ulceration of the colon [or cæcum.]

Anatomical characters.—The ileo-cæcal valve and vicinal parts are chiefly inflamed, sometimes there is partial or general colitis, the colon may be contracted in chronic cases, greatly dilated, or completely mortified. In tropical dysentery, the whole of the abdominal viscera are found inflamed. The small intestines are much distended in some cases, and the intestinal mucous membrane has been inflamed in its whole extent, except in the rectum. —*Cheyne, of Dublin.*]

PROGNOSIS.—*Favourable.*—A gentle diaphoresis; the stools becoming yellow and less frequent: the strength little impaired; sediment in the urine; the disease arising from common causes.

Unfavourable.—The disease having become habitual by long continuance; violent and distressing tenesmus and tormina; vomiting; hiccup; aphthæ; difficult deglutition; convulsions; cold extremities; delirium; cold and partial sweats; the tongue preternaturally red and dry; the pain suddenly ceasing; great prostration of strength; the faeces extremely fetid; petechiæ; involuntary evacuations; intermitting pulse; the disease being com-

plicated with others ; as with affections of the liver, with intermittent fever ; [encephalitis, arachnitis, gastro-enteritis, &c.]

TREATMENT.—*Indications*.—I. To remove the concomitant fever.

II. To evacuate the matter contained in the intestines.

III. To lessen irritation, and to restore the tone of the intestines.

To fulfil the first indication, the type of the fever must be ascertained.

If it is synocha, and the inflammatory diathesis prevails, blood-letting and the antiphlogistic regimen must be resorted to ; but this will seldom be necessary, for the fever mostly assumes a putrid tendency, when the treatment proper for typhus will be required.

Many physicians have resorted to bleeding, [when there is pain in the abdomen on pressure,] not only with a view of reducing the fever, but of also unloading the mesenteric vessels of an excess of blood which generally prevails. [Leeches are sometimes necessary.] The extent, however, to which the remedy ought to be carried is a point of the utmost importance. “ Nothing but the mitigation of pain and the extinction of fever, should form the limit to its employment.”—*O'Brien on Dysentery*.

[Blood-letting is seldom required in this country.]

If it assume the intermittent form, cinchona and tonics must be resorted to.

The second indication requires,

1. An emetic of ipecacuanha or antimonium tartarizatum.

[The free use of opium or Dover's powder to allay spasm ; and then the evacuation of the bowels by means of castor oil will generally remove this disease in a short time. The acetate of lead with opium is an effectual remedy, when there is intestinal hæmorrhage. See p. 100.

2. Cathartics.—Of this class of medicines rhubarb has been very much preferred : the submuriate of mercury [with opium in small repeated doses] has also been highly approved ; and where there is a tendency to inflammation, or the dejections manifest a total absence, or an inspissated, or ill-conditioned state of bile, no other cathartic will be so effectual.

[R. Olei Ricini ʒj ; Aquæ Destillatæ ʒss ; Liquoris Opii Sedativi m℥ xx—xxv : Fiat haustus quam primum capiendus.]

R. Olei Lini : Tincturæ Rhei āā fʒij : Miscæ : fiat haustus semel vel bis quotidie sumendus.

R. Pulveris Rhei ʒss ; Confectionis Aromaticæ ʒj ; Tincturæ Rhei fʒjss ; Aquæ Menthe Piperitæ fʒjss ; Syrupi Croci fʒj : Fiat haustus.

The refrigerant saline cathartics alone, or conjoined with manna, have been long employed, especially by the army physicians, with the greatest advantage. See p. 75.

[Counter-irritation by means of tepid oil of turpentine, antimonial ointment, or a blister, will be useful in acute cases.]

The sulphas sodæ, and the phosphas sodæ, may be used in the same doses as the sulphate of magnesia.

A small dose of opium forms a useful addition to lessen their irritation.

The oleum ricini is a very excellent purge [when combined with the compound tincture of senna.]

Ipecacuanha, administered in such doses as not to prove emetic, but to act on the bowels, is also a very effectual cathartic in dysentery. [Mr. Twinning, of Calcutta, has lately used it in this manner with success. Dover's powder is more valuable.]

3. Large emollient clysters:—

R. Amyli ℥xij; Aquæ Ferventis f℥xvj; T. Opii ʒss: Fiat enema bis terve die injiciendum.

Extract of opium, in the quantity of two grains, introduced as a suppository into the rectum, is often retained when clysters will be discharged.

Clysters of mutton broth, [beef tea, milk and water, arrow-root, and these in small quantities, or otherwise they will be speedily expelled.]

4. Emetic and purgative medicines combined.

R. Magnesie Sulphatis ʒj; Antimonii Tartarizati gr. j; Infusi Sennæ f℥vj; Syrupi Rosæ f℥ss: Fiat mistura, cujus adhibeantur cochlearia tria magna pro re nata.

To fulfil the last indication, several remedies are used.

1. Mucilaginous demulcents; as, solutions of gum acacia and tragacanth, in milk; preparations of barley, arrow-root, tous-les-mois, linseed, salep, and the like.

2. Fomentations and embrocations to the abdomen.

A strong decoction of poppy-heads [or the anodyne embrocation.

Great relief will be produced by anodyne liniments applied over the painful part of the abdomen, such as warm camphorated oil with morphia. See pp. 284.]

3. Mucilaginous clysters with opium, or suppositories of opium:

The starch clyster, with half a drachm of laudanum, every six or eight hours [and to be used cold when there is a sense of burning heat in the colon or rectum.

When there is flatulent distension of the abdomen, we should employ asafetida, turpentine, and tobacco enemata, the elastic tube with the remedies described in p. 331.]

4. Diaphoretics; especially Dr. Dover's powder. See p. 77.

5. Opium; alone, or united with antimony, nitrate of potass, or tonics, according to the type of the fever.

[Dr. Cheyne, of Dublin, states that he administered four or five grains of opium to arrest the inflammation, and then exhibited balsam of copaiba with farinaceous food, with astonishing success. —*Dublin Hospital Reports*, v. iii.

Dr. Abercrombie has found the following medicines extremely beneficial: decoction of cusparia, nitric acid, and laudanum. The abdomen should be swathed with flannel, and the patient should wear woollen socks or stockings: when there is urgent diarrhœa the French apply leeches round the anus.]

6. Antimonials: the vitrum antimonii ceratum, as recommended by Sir John Pringle. See pp. 77.

Tonics and astringents, at a more advanced period of the disease, when the frequency of the dejections seems rather to proceed from a weakened and relaxed state of the bowels than from any remains of malignancy; especially quinine, quassia, cusparia, cinchona, calumba, cascarilla, simarouba, verbasum, catechu, kino, nux vomica, arnica, hæmatoxylum, liquor calcis, bignonia capriolata, baked bread, nitrous acid with opium.

The cinchona, cascarilla, and other tonics above mentioned, may be made into an infusion in like manner; and formed with the tinctures into draughts or mixtures.

R. Acidi Nitrosi Diluti ʒij; Tincturæ Opii fʒiiss; Aquæ Destillatæ fʒxiv: Misce: capiat æger cochleare minimum quater in die, ex cyatho parvo decocti hordei.

[This is an exceedingly valuable remedy.]

R. Extracti Hæmatoxyli, ʒj; Misturæ Cretæ ʒiv; Tincturæ Catechu, fʒij; Spiritus Myristicæ, fʒj; Syrupi Zingiberis, ʒj: Misce: cujus sit dosis cochlearia tria magna tertiâ vel quartâ quaque horâ.

There has been much difference of opinion with respect to the propriety of administering cinchona in dysentery. Its use is more particularly serviceable in those cases where the attendant fever assumes the remittent form, or where the disease is complicated with typhus, or with intermittent or remittent fevers. Sir John Pringle recommends the cinchona to be joined with serpentaria Virginiana, and Dr. Akenside gave it combined with a cathartic.

[In Clinical Reports published by Drs. Graves and Stokes, it is mentioned that strychnine in doses of one-twelfth of a grain in a pill, twice a day, was highly beneficial in the Meath Hospital, or County of Dublin Infirmary. They used it on the recommendation of Rummel, a German.—*Hufeland's Journ.*, June, 1825.]

The sulphate of copper, as first tried by Dr. Sutton, of Greenwich, then by Dr. Granville, and afterwards by Dr. Elliotson, in diarrhœa, is a valuable astringent. The former combined it with opium; the latter has given it in the epidemic cholera of the year, (1832,) in the dose of half a grain every half hour.—Professor Elliotson's Clinical Lectures, *Lond. Med. and Surgical Journal*, 1832, v. ii. p. 523, No. 43, Nov. 24. See *A New Practical Formulary of Hospitals*, 1836.]

On the continent, the nux vomica, arnica montana, bignonia capriolata, and sulphur, in large and frequent doses, are the favourite remedies.

Dr. Thomas, during a residence in the West Indies, was in the habit of recommending a strong decoction of logwood, with the bark of the pomegranate and cherry tree, as an astringent drink, from which his patients seldom failed to experience a good effect.

The means above mentioned will be found totally inadequate to the cure of chronic dysentery, if a dusky sallow hue of countenance, tenderness upon pressure in the region of the liver, and a clayey appearance of what faeces happen occasionally to be voided, manifest the presence of a diseased or obstructed state of the liver. In such cases *mercury* [with the external use of iodine] is the only remedy; and this should be pushed to such an extent, as to keep up a gentle affection of the mouth until the symptoms begin to be mitigated.

Every kind of food which tends to putridity should be avoided, also spirituous liquors; and the strength should be supported by light preparations of barley, rice, sago, Indian arrow-root, flour, panada, and gelatinous broth.

[In dysentery of warm climates, Dr. James Johnson and Sir G. Ballingall opposed the use, or rather the abuse, of mercury; in some cases, an immense quantity of calomel, 974 grains, more than sixteen drachms, were exhibited unsuccessfully. Mercurial salivation, according to Dr. Cheyne, of Dublin, and Dr. Mackintosh, is not a cure for the disease. In chronic dysentery we should employ sulphate of copper and acetate of lead with opium, as well as sulphate of zinc. Four ounces of mutton suet boiled in milk and strained, is an old and valuable remedy. It may be used twice a day.]

COLICA.—THE COLIC.

SPECIES.—1. *Colica spasmodica*; with retraction of the navel, and spasms of the abdominal muscles.

2. *Colica stercorea*; in persons subject to costiveness after long-continued constipation.

3. *Colica accidentalis*;—from acrid matter in the intestines.

4. *Colica pietonum*;—a sense of weight in the lower belly, colic pains, continual, with pain in the arms and back, ending sometimes in palsy.

5. *Colica meconialis*;—in new-born children.

6. *Colica calculosa*;—with a fixed hardness in a particular part of the abdomen; calculi ejected by the anus.

7. *Colica verminosa*;—from worms.

SYMPTOMS.—Violent pain and distention of the abdomen, attended with a peculiar sense of twisting or wringing around the navel; which, with the teguments of the belly, is frequently drawn inwards: and often the muscles are spasmodically contracted in separate portions, giving the appearance of a bag full of round balls. Obstinate costiveness; frequently there is a bitter taste in

the mouth ; thirst ; slight febrile heat, and other symptoms, which indicate the presence of bile in the alimentary canal ; often there are hiccup, and flatulent eructations. Vomiting in some cases continues frequent and bilious : and in some instances stercoraceous matter is thrown up, when generally inflammation follows, and the disease is called *Ileus*, and also *Folculus*.

CAUSES.—*Exciting.*—Cold applied to the surface of the body, especially to the lower extremities and abdomen ; austere, acid, or indigestible aliment ; redundancy of acrid bile ; collections of indurated fæces, or of calcareous concretions, in the alimentary canal ; flatus ; certain metallic poisons, as lead ; hysteria ; translocation of gout ; the imprudent use of astringents in diarrhœa and dysentery ; all these increased by a constitutional irritability of the intestines.

Another exciting cause of colic to be noticed in this place, is

WORMS.

The human primæ viæ are infested by five kinds of worms.

1. *Ascaris vermicularis* : the small white thread or maw-worm.
2. *Ascaris lumbricoides* : the lumbricus teres, or long round worm.
3. *Trichuris* : the long hair-tailed thread-worm.
4. *Tænia osculis marginalibus* : the solium, or tape-worm.
5. *Tænia osculis superficialibus* : the broad tape-worm.

The ascarides have usually their seat in the rectum ; the lumbrici occupy the small intestines, and sometimes the stomach ; the trichurides the cæcum ; the tænia the whole track of the intestines, more especially the ileum.

Worms mostly produce symptoms of colic, and very frequently other symptoms, as variable appetite ; fætid breath ; picking of the nose ; hardness and fulness of the belly ; sensation of heat and itching in the anus ; preternaturally red tongue, or alternately clean and covered with a white slimy mucus ; grinding of the teeth during sleep ; short dry cough ; frequent slimy stools ; emaciation ; slow fever, with an evening exacerbation ; irregular pulse ; sometimes convulsion fits.

Worms appear more frequently in those of a relaxed habit ; those whose bowels contain a preternatural quantity of mucus or slimy matter ; in those who live on vegetable food ; in the dyspeptic ; the eating of unripe fruit is a frequent cause of their production.

They are evolved from ovula that exist in the human body, and in no other situation. For further information on this subject, consult, "*An Attempt to an Arrangement of Human Intestinal Worms*," published by the author in the fifth volume of the *Memoirs of the London Medical Society*.

Proximate.—Spasm of some part of the alimentary canal.

DIAGNOSIS.—*From enteritis.*—By the peculiar twisting pain and retraction of the navel; by the absence of fever in the early part of the disease; by the pain in enteritis being increased, in colic alleviated, by pressure; by the irregular contraction of the abdominal muscles.

The same characteristic symptoms distinguish it from inflammation of other abdominal viscera.

PROGNOSIS.—*Favourable.*—The pain remitting or changing its situation; discharges of wind and feces, followed by an abatement of symptoms.

Unfavourable.—Violent fixed pain; obstinate costiveness; sudden cessation of the pain, followed by more frequent hiccup, great watchfulness, delirium, syncope, cold sweats, weak tremulous pulse: the pulse becoming peculiarly hard (see *Enteritis*;) and the pain, before relieved, now much increased, upon pressure; volvulus: all the symptoms indicating supervening inflammation and mortification, from the accession of which the chief danger arises.

TREATMENT.—*Indications.*—I. To remove the causes, and procure evacuations.

II. To relax the spasm by opiates.

Evacuations must be procured.

1. By cathartics; at first by the more mild; as rhubarb, magnesia, sulphate of soda or magnesia, oleum ricini: if these prove ineffectual, calomel united with extractum colocynthis compositum, especially where there has been bilious vomiting.

One or two drops of the oleum crotonis, seldom fails in producing evacuations.

2. Copious clysters; the common emollient, or with colocynth. or the purging salts, [or muriate of soda.]

R. Decocti Seminis Avenæ f. ʒij; Sodæ Sulphatis ʒj; Olei Olivæ f. ʒjss: Fiat enema purgans.

R. Infusi Anthemidis f. ʒx; Sodæ Sulphatis ʒj: Fiat enema purgans.

R. Decocti Althææ f. ʒx; Sodæ Sulphatis ʒvj; Olei Olivæ f. ʒj.

R. Extracti Colocynthis ʒj; Infusi Sennæ f. ʒij: Fiat enema.

A copious injection of cold water has, in some instances, been followed by the desired effect. Should these be unsuccessful, recourse may be had to the injection of an infusion of tobacco.

3. Cold water dashed upon the extremities; or ice, snow, &c. applied in a cloth, or bladder, to the abdomen, have sometimes procured evacuations, in cases where every thing else had been unsuccessful.

4. Indurated feces in the rectum are at times to be removed only, after being previously broken down, with the finger, or with an appropriate instrument.

The second indication requires,

1. Bleeding, if the concomitant strength of constitution and fulness of vessels, with strong pulse, are present; but it is seldom

necessary. [It relieves spasm, and prevents inflammation in severe cases.]

2. Carminatives and antispasmodics; opium in large doses, cordial and opiate confection, cardamoms, &c.

R. Confectionis Aromaticæ ʒss; Pulveris Rhei gr. xvij; Aquæ Menthe Piperitæ f.ʒxij; Tincturæ Cardamomi ʒjss; Syrupi Zingiberis, ʒj: Fiat haustus quartâ vel sextâ quaque hora sumendus.

R. Tincturæ Cardamomi compositæ f.ʒij; Tincturæ Opii ℥v; Syrupi Croci f.ʒj; Aquæ Menthe Piperitæ f.ʒxij: Fiat haustus quartis vel sextis horis capiendus.

R. Confectionis Opiatæ ʒss; Olei Carni ℥ij; Pulveris Rhei q. s.: Fiat bolus quartis vel sextis horis adhibendus.

3. Warm bath; semicupium, and fomentations to the abdomen.

4. Blisters, and warm plasters, [or hot turpentine frictions.]

5. Opiate clysters.

6. If there be great irritation of the stomach, with frequent vomiting, the saline medicine in an effervescing state.

7. Colic from the presence of flatus is often relieved by some aromatic cordial, or a small portion of brandy.

Of the colica pictorum.

The colic induced by lead is more obstinate, and longer protracted, than the same disease brought on from common causes: and frequently terminates in paralysis of the wrists and upper extremities.

TREATMENT.—Oleum ricini, often repeated, is most effectual in procuring stools, and with fomentations and warm bath, generally removes the disorder in a few days; afterwards mercury united with opium, to excite slight salivation; alum; electricity; chalybeate and sulphureous waters; sinapis. [The free use of opium is highly beneficial.]

R. Hydrargyri Submuriatis gr. ʒ; Extracti Opii gr. ss; Confectionis Rosæ q. s.: Fiat pilula ter in die sumenda.

R. Aluminis Purificati ʒss; Infusi Rosæ ʒxij; Syrupi ejusdem ʒj: Fiat haustus ter in die sumendus.

Colica pictorum is often productive of inflammation of the bowels and peritoneum, when the warm bath, general and local blood-letting, must be had recourse to.

Of colica verminosa.

1. The most esteemed remedies against ascarides and trichurides are purgatives of the submuriate of mercury, scammony, aloes, rhubarb, spigelia, cowage, tin; also assafetida, lime-water, tobacco.

R. Scammonii gr. ij; Hydrargyri Submuriatis gr. ij; Sacchari Purificati gr. vj; Fiat pulvis ex quovis vehiculo crasso sumendus.

R. Extracti Aloes Spicatæ; Extracti Tanacetii, āā ʒss; Olei Rutæ ℥xij: Fiant pilulæ xij, quarumumat aeger duas nocte maneat.

R. Radicis Spigeliæ ʒvj; Aquæ Ferventis Oj: Macera per

horas duas: R. Hujus Infusionis ℥xij; Tincturæ Cardamomi f.℥j; Syrupi Zingiberis ℥j: Fiat haustus nocte maneque capiendus. Assafoetida or tobacco enemata.

R. Liquoris Calcis Oj: Fiat enema omni nocte injiciendum.

R. Limaturæ Stanni ℥j; Electuarii e Senna f.℥ij; Syrupi Zingiberis q. s.: Fiat Electuarium molle, de quo sumatur cochleare unum minimum quovis mane.

R. Camphoræ ℥j; Olei Olivæ f.℥ij: Solve pro enemate urgente prurigne adhibendum.

A decoction of the geoffræa inermis, or cabbage-bark, is a remedy much used, according to Dr. Wright, in the West Indies. [These remedies are of little use unless we improve the digestive functions.]

2. Against the tæniæ most of the drastic purges before prescribed have been resorted to. Madame Noufer's remedy is occasionally used with success.

The panacea of mercury in Noufer's nostrum is the submuriate; and the male fern is the polypodium filix mas of Linnaeus, and aspidium filix mas of Smith.

4. Turpentine has been given in some cases with success. In the year 1705, a letter was put into the hands of the author, from a medical gentleman in the East Indies, which contained an account of a large dose of the oil of turpentine having been swallowed by mistake, and which brought away several worms. In consequence of this, the oleum terebinthinæ was administered as an anthelmintic in the dose of from one drachm to an ounce to several patients with tania; the result was equally uncertain with other purgatives. Of late its use has become more general. The best way to give it is mingled with syrup, and to direct the patient to take some gruel, arrow-root, or sago, after it. It produces a slight vertigo, and a sense of warmth and heat in the œsophagus and stomach, like to that produced by a glass of brandy; but these are very transient. Three or four evacuations are mostly produced by half an ounce. —For other Prescriptions, see my *Medico-Chirurgical Formulary* for 1837.

CHOLERA.

SPECIES.—1. *Cholera spontanea*; occurring in warm weather without any manifest cause.

2. *Cholera accidentalis*; from acrid matter in the stomach and intestines.

SYMPTOMS.—Nausea, pain, and distention of the stomach and intestines; quickly succeeded by a violent and frequent vomiting and purging of bilious matter; frequent, small, sometimes unequal, pulse; much thirst and heat, followed by cold sweats; great anxiety, spasmodic contractions of the extremities, and sometimes universal convulsions; hiccup, and not unfrequently death, within the space of twenty-four hours.

CAUSES.—Excessive heat, or sudden transitions from heat to cold; hence more frequent in autumn, from an exposure to cold evenings after very hot days; food of difficult digestion; rancid butter; the colder fruits; such as cucumber, melon, &c.; active and violent purgatives; poisons; violent passions of the mind; marsh miasma.

Proximate.—Inordinate secretion of bile of a vitiated quality.

PROGNOSIS.—*Favourable.*—A gradual diminution of the symptoms; especially vomiting, succeeded by sleep, or a gentle moisture on the skin. The disease, when protracted to the fifth, sixth, or seventh day, seldom proves fatal.

Unfavourable.—Spasm of the extremities; convulsions; great prostration of strength; cold clammy sweats; anxiety; short hurried respiration; continual hiccup; intermitting pulse; fætid vomiting; great distention of the abdomen.

TREATMENT.—*Indications.*—I. To allay the inordinate commotion of the stomach and intestines, by correcting the acrimony of the secreted bile, and by diminishing their irritability.

II. To restore the tone of the primæ viæ.

The first indication requires,

1. Copious tepid diluents of weak chicken broth, decoction of barley, &c.

2. Emollient clysters of starch, marsh-mallows, linseed.

3. Opium in large doses, both by the mouth, and in the form of enema, or applied externally by friction, to the abdomen.

R. Tincturæ Opii ℥xv; Confectionis Aromaticæ ℥ss; Aquæ Cinnamomi f. ℥x: Fiat haustus quartis vel sextis horis capiendus.

R. Confectionis Aromaticæ ℥ij; Spiritus Ætheris Sulphurici Compositi f. ℥ij; Misturæ Camphoræ f. ℥vj; Tincturæ Opii f. ℥ss; Syrupi Rhaados f. ℥ss: Misce: sumat æger cochlearia duo magna subinde urgente spasma.

4. Warm plasters and fomentations of poppies, with the addition of spiritus camphoræ; the saline draught in the act of effervescence.

The tone of the primæ viæ is to be restored,

By the use of the stomachic tonics, and other bitter remedies recommended for the cure of dyspepsia; beginning with the lighter preparations.—See p. 321.

EPIDEMIC, SPASMODIC, ASIATIC, BLUE, PESTILENTIAL AND MALIGNANT CHOLERA.

Vomiting and purging of watery matters without any appearance of bile; spasms in the inferior extremities and abdominal muscles extending through the body, speedily followed by sinking of the vital powers, and sometimes by lividity of the face and extremities and whole surface of the skin. This species of cholera was described by Sydenham, in 1669, as epidemic in this country.

with the exception of the lividity. It was observed by Mr. Thackrah, of Leeds, in 1825. It appeared in Bengal in 1817, and spread over all Asia; visited Poland, Russia, England, Scotland, France, Ireland, and the United States of America in 1831-2. The Indian cholera was described by Curtis, 1782, Paisley, Sonnerat, Guddlestone, 1782, and Dr. James Johnson and many others.

This disease appeared at Jessore, in the centre of the Delta, and gradually spread through all parts of India, where it is now endemic. Dr. Copland gives the following account of the progress of this disease.

" During 1818, it visited, in an easterly direction, the Burmese empire, the kingdom of Arracan, and the peninsula of Malacca. In 1819, it appeared in the isle of Penang, in Sumatra, Singapore, the kingdom of Siam, Ceylon, and the isles of France and Bourbon. During 1820, it reached Tonquin, Cambogia, Cochin-China, Southern China, Canton, the Philippines, &c. In 1821, it visited Java, Bantam, Madura, Borneo, and numerous other places in the Indian Archipelago. In the years 1822, 1823, and 1824, it appeared at Tonquin, Pekin, Central and Northern China, the Moluccas, Amboyna, Macassar, Assam, and various other Eastern countries and islands. During 1827, it prevailed in Chinese Tartary. In all these countries and places its prevalence and fatality were unprecedented in medical history.

" In July, 1821, it reached, in its western course, Muscat in Arabia, and, during the remainder of the year, visited various places in the Persian Gulf. In the following month it appeared in Persia, and during 1822 and 1823, 1829 and 1830, it prevailed in several of the principal cities of that empire. It broke out in Bussorah and Bagdad in July 1821, and in 1822 and 1823, ravaged most of the populous cities of Mesopotamia, Syria, and Judea.

" In 1822 it reached to within 150 miles of the Georgian frontiers of Russia, and in 1823 appeared at Orenburg and Astrachan, beyond which it seems not to have extended until August 1828 and 1829, when it reappeared at Orenburg, the capital of the province of that name, situated on the Tartar frontier, about 400 miles north of the Caspian, and about 1000 miles north of the places where it prevailed extensively in 1822. Its prevalence and fatality in this province were great, upwards of a tenth of the inhabitants having been seized, and about a fourth part of those attacked having died of it. At the same time that the disease appeared in Orenburg, it was raging in several Persian provinces and Tartar tribes in Central Asia, from which it was supposed to have been introduced into Orenburg. At the commencement of 1830, the disease had entirely ceased in the Russian dominions; but, towards the beginning of autumn, it broke out with increased violence on the Georgian frontier of Persia, having appeared, in June, in the

Persian province of Ghilan, on the southern shore of the Caspian, from the various southern ports of which it extended northwards along the westward Caspian shore until it reached Baku, Tiflis, Astrachan, and numerous other towns, in its progress into the heart of the Russian empire. After attacking a number of places, it has continued to spread westward and northward through Russia, Poland, Moldavia, and Austria; visiting Moscow, Warsaw, and other places in Poland, and extending, in May 1831, to Riga and Dantzic, and in June and July, to St. Petersburg and Cronstadt: early in October, to Berlin and Vienna, and subsequently, to Hamburgh, &c." It appeared at Sundegland, 24th October, 1831, and in London on 16th of January, 1832.

According to Sir William Russell and Sir David Barry, who were sent by the British government as medical commissioners to observe cholera in Russia, the disease is in all essential points identical with the Indian malady, but is in some degree modified (Despatch to the Home Secretary of State, July 7, 1831). In subsequent despatches, the disease is considered contagious.

Dr. Hamett, the British medical commissioner sent to Dantzic, reports to the government the occurrence of 776 cases in different localities, in which there was no trace of contagion; and that 1932 persons, of all ages, besides many others, were shut up in cholera dwellings (for at least twenty days) during the first two months of the epidemic, and escaped the disease. Mr. Gibson, our consul, declares the disease appeared at a time when it was not suspected to be within a hundred miles of Dantzic; and without there being the slightest trace or communication with any foreign means of infection. These reports were partly suppressed, as opposed to the Central Board of Health of London, a body composed of Sir W. Pym, Sir W. Russell, Sir D. Barry and others, who were contagionists.—See *Hamett's Reports*, 1832.

But the Central Board of Health also comprised several members of the privy council, and, in consequence, an act of parliament was rapidly passed through both houses, declaring epidemic cholera contagious and of Asiatic origin; authorizing the establishment of parochial and local boards of health, and enforcing quarantine. The first effect of this act was to increase the number of contagionists, and to excite universal terror through this kingdom and the civilized world. Nevertheless, nine-tenths of the faculty, who were daily observing the disease, were non-contagionists. Several of their opponents joined them daily, and at length the whole profession were opposed to contagion, except those connected with boards of health.

The appearance of the disease at Sunderland was ascribed to importation from Hamburgh; but this was by no means proved, and the disease had appeared in the vicinity previously. It had appeared at Leeds, in 1825, as already stated. The first case that occurred in London was that of a soldier of the grenadier guards,

named Webb, (Jan. 1832,) who was seen by Dr. James Johnson, Dr. Gilkrest, and others, who had declared it cholera; but it was not admitted by the Central Board of Health, as it could not be traced to contagion. These gentlemen, with the surgeon and assistant surgeon of the regiment, have since publicly declared that Webb had as genuine cholera as any they had subsequently observed.

The official board decided that the first case occurred, in February, in a man who had been scraping a Sunderland coal vessel on the Thames. But as this favoured the doctrine of importation, other cases were proved to have existed previously in the street in which the labourer in the coal-smack had resided. The Medical Society of London, and the Westminster Medical Society, were at first divided, but soon became non-contagionists with scarcely an exception. Soon after the appearance of the disease in London, I was the only physician who was a non-contagionist in both the societies mentioned; but the French report, and the advocacy of the public press, of my opinions from the Medical and Surgical Journal, converted the profession, and abolished Cholera Boards in 1832.

Cholera appeared first in Paris in March, and the physicians and surgeons of the Hôtel Dieu, after the most careful observation, declared that it was not contagious. The subscribers to this resolution were Petit, Husson, Magendie, Honore, Sanson, Gendrin, Recamier, Dupuytren, Breschet, Gueneau de Mussy, Cailiard Baillie, March 31st, 1832. The medical officers of the hospital St. Louis next agreed with their colleagues of the Hôtel Dieu, and signed a resolution to that effect, April 6th, which was signed Alibert, Biett, Emery, Jobert, Lugol, Monry, Gerdy, and Richerand. The officers of La Pitié arrived at the same conclusion, April 30th; Serres, Clement, Perent de Chatlet, Lisfranc, Louis, Andral, Bouillaud, and Velpeau. The Westminster Medical Society made a similar declaration, April 28th. Dr. Barker, the secretary to the Dublin Board of Health, declared that the disease was not imported into the Irish capital. The Edinburgh Board of Health advocated contagion; but Professor Lizars and Dr. Sanders, and most of the ablest practitioners, were strenuous non-contagionists. Notwithstanding the general, indeed the almost universal opinion that the disease was epidemic but non-contagious, still the contrary declaration of the government Board of Health, aided by an act of parliament, had most influence with the public, and with foreign countries.

Quarantine was rigidly enforced in London and most of our ports; but the disease, like all epidemics, spread in despite of human intervention; and after our trade and commerce were most seriously injured, the disease being in full force, quarantine was abandoned. For a full account of the history of the disease, see *London Medical and Surgical Journal*, 1832, vols. i. and ii.

SYMPTOMS.—Diarrhœa more or less intense, with feculent dejections at first, but speedily assuming the appearance of rice-water or gruel, flying pains, or sense of coldness in the abdomen, as if purgative medicine was about to operate; countenance pale, no appetite, nervous agitation, diminished muscular power, nausea or vomiting, slight or severe cramps in the legs, arms, abdominal muscles, and loins; small, weak pulse, cold, clammy, or moist skin, and these symptoms varying in intensity, may appear successively or simultaneously. In some cases the patient is struck down almost lifeless; in others the disease steals on for eight or ten days. When it came on suddenly, in addition to the above symptoms, the cramps commenced in the fingers and toes, and rapidly extended to the trunk; the eyes were sunk, and surrounded by a dark circle; vomiting and purging of white coloured matters, mixed with floeculi; features contracted and sharpened, wild and confused expression of countenance. The face, extremities, and sometimes the whole surface of the body, assumed a leaden, bluish, or purplish hue, varying in the degree of intensity; the extremities were shrunk and contracted, nails blue, pulse thready or imperceptible at the wrist, arm, axilla, temple, or neck; skin cold and damp, a great restlessness; inexpressible pain in the epigastrium, loud moaning or groaning, incessant restlessness or jactitation, difficult, oppressed respiration; inspiration effected with great difficulty, expiration short and convulsive, voice plaintive or nearly suppressed, speech in a plaintive whisper; tongue white, cold, and flabby, temperature 88° ; spasms passive or periodical, occasionally almost tetanic, or are replaced by a constant tremor. The secretions of bile, saliva, tears, and urine, are entirely suppressed, and there is an earthy or cadaverous odour exhaled by the body. Death generally takes place in from six to twenty-four hours.

PROGNOSIS.—*Favourable Symptoms.*—In cases about to terminate favourably, re-action gradually takes place, and all the symptoms improve; the cramp ceases, the dejections contain bile, urine is secreted, the voice and pulse return, there is an increase of animal heat in the extremities and surface of the body, and improvement of countenance, circulation, respiration, and muscularity.

Unfavourable.—Delirium, sordes on the teeth, lips, and gums, increased prostration of the vital powers, coldness and blueness of the surface, collapsed countenance, small, irregular, and thready pulse, oppression and difficulty of respiration, involuntary evacuations, subultus tendinum, convulsions—death.

Anatomical characters.—Congestion of the lungs and brain; blood black, oily, and dissolved, same in arteries and veins; brain and its membranes congested, serum in brain and spinal marrow; the abdomen, on being opened, often emits a fœtid odour; fluids, like those vomited and passed from the bowels, detected in the alimentary canal; flatus; intestinal mucous membrane covered

with a tenacious substance, and of a dark or scarlet hue, either partially or generally; stomach and bowels paler than natural; gall ducts may or may not be contracted. The gall-bladder is much distended with viscid bile. The pancreas, spleen, and kidneys are in their ordinary state, or gorged with blood. The urinary bladder is always contracted and empty. The vena porta and all the large abdominal veins are loaded with black blood resembling tar in appearance. The brain and its membranes may be healthy or congested.

TREATMENT.—There is no disease for which such a variety of remedies was proposed, or in which all remedies so completely failed, as in the epidemic cholera of the year 1832. After all that has been written on the subject, we know no remedy for the disease. Emetics, venesection, warm, hot air-baths, exhausted air-bath, frictions, with all forms of stimulating liniments, internal stimulants as in the last stage of fever. See pp.82—91.

Saline medicine, see p. 93, saline injections into the veins, vapours and gases by inhalation, in immense quantities.

Mercury, galvanism, nitric acid applied to the nucha, actual cautery along the spine; large opiates, strychnine, acetate of lead, copious libation of cold water, were all employed with little, if any, success.

DIARRHŒA.—LOOSENESSE, OR PURGING.

SPECIES.—1. *Diarrhœa crapulosa*; the fœces discharged in a more liquid state than is natural, and in greater quantity.

2. *Diarrhœa biliosa*; a great quantity of yellow fœces discharged.

3. *Diarrhœa mucosa*; copious discharge of mucus.

4. *Diarrhœa cœliaca*; discharge of a milky humour like chyle.

5. *Diarrhœa hæmorrhœica*; the food without any material change quickly discharged.

6. *Diarrhœa hepaticorrhœica*; discharge of a bloody matter like serum, without pain.

CHARACTER.—Frequent and copious discharges of a feculent matter by stool, accompanied by much griping; each defection is usually preceded by a murmuring noise, and flatulence in the intestines, together with sense of weight and uneasiness in the lower belly, which cease on the discharge taking place, but are again renewed before the succeeding one ensues. There are frequently sickness, nausea, and vomiting; the countenance turns pale, sometimes sallow; thirst; dryness and bitterness of the mouth, and yellowness of the tongue, indicating the presence of bile in the alimentary canal; the skin is dry and rigid, and if the disease continue, great emaciation succeeds.

CAUSES.—*Remote*.—The application of cold to the surface of the body; perspiration suppressed by any cause; passions of the mind; acrid indigestible aliment; acid fruits; acidity generated

in the stomach from a deficiency of bile; oily and putrid substances; the abuse of active purgatives; increased secretion of mucus from the mucous follicles of the intestines; erythematic inflammation; worms; retrocedent gout or rheumatism; diminished action of the absorbent vessels of the intestines.

Proximate.—Increased peristaltic motion of the intestines.

DIAGNOSIS.—*From dysentery*.—By being unattended either with inflammation, fever, contagion, or tenesmus; by the appearance of the matter evacuated; which in the one disease is feculent, or mixed with alimentary matter; in the other, sanguineous or putrid.

TREATMENT.—*Indications*.—I. To obviate or remove the morbid cause.

II. To suspend the inordinate action of the intestinal canal.

III. To restore the impaired tone of the parts.

Irritating causes are often lurking in the intestinal canal, and must be removed,

1. By a gentle emetic of ipecacuanha.

2. Aperients of rhubarb, magnesia, oleum ricini, or purging salts.

3. Diluents and demulcents; as the decoctum lini, decoctum hordei, decoctum hordei compositum, and the like.

4. Alkalis and absorbents.

5. Fomentations and sinapisms to the extremities, in cases of translated gout or rheumatism.

6. Anthelmintics; if the disease arise from worms.

7. Diaphoretics; if from suppressed perspiration; as the pulvis ipecacuanhæ compositus, or pulvis Jacobi, or antimonium tartarizatum, in small and frequent doses.

The inordinate action of the intestinal canal is suspended,

1. By opium, with cordial astringents.

R. Confectionis Aromaticæ ʒj; Tincturæ Catechu f.ʒj; Misturæ Cretæ f.ʒvj; Syrupi Zingiberis f.ʒss; Tincturæ Opii f.ʒss; Fiat mistura, ejus capiantur cochlearia duo vel tria post singulas sedes liquidas, concusso prius vitro.

R. Confectionis Aromaticæ ʒj; Tincturæ Catechu f.ʒj; Spiritus Ammoniac Compositi f.ʒij; Aquæ Cinnamomi f.ʒvj; Syrupi Zingiberis f.ʒss; Tincturæ Opii m℥i; Fiat mistura, de qua sumantur cochlearia tria magna post singulas sedes liquidas.

R. Confectionis Opii ʒjss; Tincturæ Kino f.ʒj; Syrupi Zingiberis f.ʒss; Misturæ Cretæ f.ʒvjss; Fiat mistura, ut priori capienda.

2. Diaphoretics; pulvis ipecacuanhæ compositus.

R. Pulveris Ipecacuanhæ compositi gr. v; Misturæ Cretæ, f.ʒxij; Spiritus Cinnamomi f.ʒij; Syrupi Papaveris f.ʒj; Fiat haustus quarta quaque hora adhibendus.

3. Astringents; especially kino, alumén, resina acaroides, hæmatoxyllum, sinarouba, liquor calcis, ulmus, lichen. {Cupri-sulphas has been taken every day for three years. Elliotson's Clinical Lectures.—*London Medical and Surgical Journal*, vol. ii.

1832 : p. 523.—See Dysentery. The persesquinitrate of iron is very strongly recommended by Mr. Kerr, in the Edinburgh and Glasgow Medical Journals.]

HEPATITIS.—INFLAMMATION OF THE LIVER.

Species.—1. *Hepatitis acuta.*—2. *Hepatitis chronica.*

SYMPTOMS.—The symptoms of the acute species are pain in the right hypochondrium, increased by pressure, often extending high in the chest, and resembling pleurisy; incapacity of lying upon the left side; dry cough; difficulty of breathing, and shooting pains in the chest resembling pleurisy; sympathetic pain in the right shoulder, the seat of which generally corresponds with the part of the liver most affected, being anterior or posterior, according as the anterior or posterior part of the liver happens to be implicated; and when the inflammation occupies the left lobe, then the pain is commonly in the left shoulder; a yellow tinge of the tunica conjunctiva, and sometimes actual jaundice; high-coloured urine, either costiveness or diarrhœa. In some instances there is a deficiency of bile in the intestines, when the fœces are of a clay or white colour; sometimes a superabundance, which is then rejected by vomiting and stool.

When the *concave* surface of the liver is affected, the pain is more obscure, and is referred to the back; the breathing is less anxious, the functions of the stomach more disturbed, producing vomiting, hiccup, and other symptoms of gastritis; the respiration is laborious or painful, and should bronchitis, pneumonitis, or pleuritis exist at the same time, the cough and pulmonic symptoms are severe; and in chronic hepatitis, the term “liver cough” was formerly employed to designate the cough in such cases.

[When the left lobe of the liver adjacent to the stomach is inflamed there is nausea or vomiting; and when the posterior and inferior portion of the organ near the kidney is implicated there is more or less pain or disturbance in the function of the last mentioned organ. Abscess of the liver may burst externally into the stomach and be vomited, into the colon or duodenum, and be evacuated by the bowels, through the diaphragm into the cavity of the chest, and form empyema, or into the lung or bronchial tube, and be expectorated, or into the corresponding muscles of the back, and open in that direction.]

Acute hepatitis may terminate in the chronic form, or in various other degenerescences.

Hepatitis terminates either in *resolution*, about the fourth, seventh, or eleventh day; or in *suppuration* and abscess.

The attack of *chronic hepatitis* is in general so gradual, and the symptoms at its commencement so obscure, that it is long unattended to. It is marked by symptoms of dyspepsia, loss of

appetite, flatulence, sense of fulness and distention of the stomach; at length the health is impaired, weight, and obtuse pain in the region of the liver, or more frequently referred to the back: the countenance becomes sallow; torpor and inactivity; dejection of mind; the functions of the primæ viæ greatly disturbed; obstinate costiveness; clay-coloured stools, scirrhus, dropsy, jaundice.

CAUSES.—All the causes inducing inflammation, biliary concretions, irritations of acrid bile, the violent operation of emetics, external injury, passions of the mind, intense heat, intemperance in the use of spirituous liquors, [blows over the organ, or falls on the trunk, feet, knees, breech, which cause concussion, and often rupture of the liver or of its ligaments.]

DIAGNOSIS.—*From pneumonitis.*—By the pleuritic pain being less violent, and chiefly confined to the course of the phrenic nerve; (ascending to the top of the shoulder, generally the right); by the pain in hepatitis being increased by pressure, in pneumonia unaffected by it; by the difficulty, in pneumonia, of lying upon the affected side, while in hepatitis pain is occasioned by lying upon the opposite; by the sallowness of countenance; by the cough being generally unaccompanied with expectoration.

From gastritis and enteritis.—By the seat of the disease, discovered by tenderness upon pressure; by the sympathetic pains of the clavicle and shoulder; by the less prostration of strength, and greater fulness of pulse; by the colour of the stools and urine.

From dyspepsia.—See Dyspepsia, p. 320.

PROGNOSIS.—*Favourable.*—About the third, fifth, or seventh day, bilious diarrhœa; universal and free perspiration, copious sediment in the urine, inflammation appearing upon an external part, hæmorrhage from the hæmorrhoidal veins, these followed by an abatement of fever, and of other symptoms.

Unfavourable.—Intensity of pain and fever, the pain confined to a point; continual hiccup, cold extremities, while other parts are extremely hot; obstinate constipation. When hepatitis terminates in resolution, it is mostly in three or four days from its commencement; if it last to the seventh, there is great probability of its ending in suppuration. As soon as suppuration takes place, the pain remits, and there is generally a sense of weight and pulsation in the region of the liver, the former being increased by lying on the left side. These symptoms are attended with frequent and irregular shiverings, and at length with hectic fever. After an abscess has been thus formed, it may point in various directions; the matter may be discharged either into the intestine, the cavity of the thorax or abdomen, or into the bronchi; or an opening may take place externally, [either on the abdomen or back,] which is the most favourable.

Gangrene very rarely terminates hepatitis: and when it does, it is known by the symptoms of mortification already mentioned.

In the chronic form, an enlargement, and preternatural hardness of the organ obvious to the feel ; the constitution impaired by previous excesses. It often happens that chronic hepatitis is mistaken for hydatids, scirrhus, calcareous or ossific deposit, and for other incurable diseases.

[In chronic hepatitis and other degenerescences of the liver, when the organ is enlarged, it presses on the vena porta, obstructs the return of the venous blood from the abdomen, causes congestion of the peritoneum and cellular membrane of the inferior extremities, and induces ascites or effusion into the peritoneal (or abdominal) cavity, and anasarca or œdema of the lower limbs. In such cases a cure cannot be effected without the removal of the disease of the liver, which is the cause of the dropsy. The pressure of anormal tumours on the large venous trunks in the abdomen, or disease of the valves of the right cavities of the heart will obstruct the return of the venous blood, and produce dropsy. Disease of the kidney is also a frequent cause of dropsy.—See Ascites, and Anasarca. Many diseases of the liver, like those of all other organs, are incurable.]

TREATMENT.—The *indications* in the *acute species* are the same as in all visceral inflammations.

They are best fulfilled by,

1. General and topical blood-letting.

Most authors and practitioners have observed, that blood-letting ought not to be carried to the same extent in hepatitis as in the other genera of the phlegmasiæ. Some assign as a reason for this, the peculiarity of the circulation through the liver; others, that the organ affected is less essential to life; or that the inflammatory symptoms do not often run so high as in the other inflammations.

General blood-letting is seldom serviceable after the fourth day; but the state of the pulse and urgency of the pain must always direct us with regard to it.

[Admoveatur cucurbitula cruenta regioni hepatis, vel applicentur hirudines.

When the hæmorrhoidal or catamenial evacuations are suppressed, the abstraction of blood from the anus is preferable. The leeching should be repeated while pain is urgent.]

2. Blisters, applied to that part of the region of the liver in which the pain is.

3. Cathartics, especially submuriate of mercury.

R. Hydrargyri Submuriatis gr. v; Pulveris Antimonialis gr. iij: [Pulveris Cinnamomi compositi gr. ij:] Fiat pulvis catharticus, ex syropo sumendus.

4. Saline and antimonial diaphoretics, such as are recommended against inflammatory fever.—See p. 77.

When the antiphlogistic plan has been continued for five or

seven days, and the symptoms do not abate, the submuriate of mercury must be given frequently. [A grain every fourth or sixth hour, which will be advantageous.]

Should suppuration take place, and an abscess form externally, it must be brought forward as quickly as possible by poultices and fomentations; a generous diet; the use of quinine, cinchona, and bitters; and an early incision is to be made when it points. [Mercurialization or the use of iodine may cause its absorption.]

The *chronic* species must be treated with:—

I. Mercury, both internally and externally applied, in small quantities. [The hydriodate of potass, or the proto-ioduret of mercury in very obstinate cases is preferable.]

R. Camphoræ gr. v; Unguenti Hydrargyri fortioris ℥j: Fiat unguentum, in regionem hepatis alterna quaque nocte, illinendum.

[R. Iodinii pulveris ℥j; Potassæ Hydriodatis ℥ij; Morphie Acetatis gr. iv; Unguenti Hydrargyri Fortioris ℥j: Fiat unguentum cujus drachmâ fricetur regio hepatica nocte manequæ.

Dr. Elliotson has found iodine given internally, and used externally, most efficacious in reducing enlarged liver, and better than hydriodate of potass. He gives calomel at night at the same time, ℥j iodine, ℥j adeps ℥ss m. n: 15 grs. hydriodate of potass 3 die. —*London Medical and Surgical Journal*, vol. ii. *Clinical Lectures*, p. 524.—I have also used the hydriodate of potass internally and externally with perfect success. It was first employed in this country by Dr. Milligen.—See *Formulary of Hospitals*, 1836.]

R. Hydrargyri Submuriatis; Sulphureti Antimonii Præcipitati. āā ℥j: Terantur simul in mortario per horam unam integram ut fiat pulvis subfuscus;

R. Hujus Pulveris gr. j; Confectionis Rosæ gr. v; Misce ut fiat pilula ter in die sumenda.

R. Hydrargyri Submuriatis gr. j; Extracti Conii gr. iij; Misce ut fiat pilula ter in die Capienda.

2. A continued course of bitter tonics and aperients, as taraxacum, gentiana, quassia, or calumba with soda are useful.—See *Dyspepsia*, p. 320.

3. The *nitric* acid has been frequently of great use [when mercury cannot be employed, or when there is a redundancy of bile.]

R. Acidi nitrici diluti m℥vij; Aquæ destillatæ f℥xij; Syrupi simplicis f℥ij: Fiat haustus ter quaterve die capiendus.

R. Acidi Nitrici f℥j; Aquæ destillatæ f℥ij Syrupi aurantii f℥jss; Fiat mistura quotidie sumenda, ope tubuli vitrei, partitis haustibus.

The chlorine or nitro-muriatic acid has of late been used, in some cases with great benefit, both internally and externally.

R. Aquæ Cinnamomi; Aquæ Menthæ Viridis, āā f℥vj; Syrupi Aurantii f℥j: Misce, dein adijce; Acidi Muriatici; Acidi Nitrici, āā℥jss: Fiat haustus quater in die sumendus.

R. Acidi Muriatici Oxygenati $f\overline{5}j$; Aquæ Menthæ viridis $f\overline{5}xiv$; Syrupi Aurantii $f\overline{5}j$: Fiat haustus ter quaterve die capiendus.

Removal from a warm to a cold climate is useful, and a sea voyage, [or a course of chalybeate waters is beneficial.]

[The nitro-muriatic acid pediluvia or manuluvia, is a valuable remedy, and acts as an aperient. It is also applied with a sponge over the region of the liver, thighs, legs, and arms. The following is the formulæ for this acid lotion, and may be used hot or cold:—

R. Acidi Nitrici $\overline{5}iv$; Acidi Muriatici $\overline{5}j$; Aquæ puræ Oiv: Probe commisceantur in usum.

I have been informed by a respectable medical friend, that a scruple of subcarbonate of potass given three times a-day, has frequently removed enlargement of the liver. When the intestinal canal is healthy, Martinet has found drastic purgatives remove induration of the liver, as if by enchantment, after all other remedies had failed. The internal and external use of iodine has also succeeded in several cases under my care.]

NEPHRITIS.—INFLAMMATION OF THE KIDNEY.

SYMPTOMS.—Pyrexia; pain in the region of the kidney; the pain extends along the course of the ureter, and is accompanied with numbness, or some other unpleasant sensation [increased by motion, and sometimes by pressure, and especially on straightening or stretching the lower extremity on the affected side. Instinct directs the patient to avoid this; to incline to the affected side, and to bend the limb, thereby relaxing the muscles of the loins. Hence he lies on the affected side or back, and draws up one or both lower extremities.] of the leg and thigh on the affected side; retraction of the testicle; nausea and vomiting; high-coloured, sometimes mucous, or bloody urine; micturition; dysuria, [with partial or total suppression of urine; the pulse is full, hard and frequent at first, but becomes small as the disease advances.]

It terminates in resolution; in abscess; or in gangrene; known by the ordinary symptoms that accompany these terminations of inflammation in other parts.

CAUSES.—The common causes of inflammation; acrid diuretics; calculi or gravel in the kidney sticking in the uriniferous tubes, ureters, or bladder; external injury; long continued and violent exercise of the muscles of the back as on horseback; collections of hardened feces in the colon; retrocedent or atonic gout; violent exertions, strains, [diseases of the urethra, prostate gland, bladder, and ureters.]

DIAGNOSIS.—*From lumbago.*—By the seat of the complaint, discovered upon pressure; by the pain following the course of the anterior crural nerve; by the dysuria and micturition; by the pain not being increased upon motion of the muscles.

[It may be confounded with inflammation or abscess of the psoas muscle; but in this disease relief is experienced by straightening the limb by bending it forwards, which does not happen in nephritis.]

From gastritis.—By the seat of the pain, &c.—See symptoms of gastritis, p. 317.

PROGNOSIS.—*Favourable.*—Remission of pain, fever, and tension, followed by a very copious excretion of high-coloured mucus, or purulent urine; universal equable perspiration; hæmaturia; if succeeded by a remission of symptoms; hæmorrhoids. [The prognosis is generally favourable in idiopathic nephritis before the fifth day.]

Although nephritis frequently terminates in suppuration, the ulceration formed in the kidneys does not materially affect the health, and generally heals, unless there be a scirrhus or serofulous diathesis.

Unfavourable.—Pale urine, secreted in small quantity; great micturition; dysuria; sudden cessation of pain, hiccup, delirium, cold extremities, severe rigors, and supervening hectic fever.

The kidney, like all other organs, sympathises with other parts; and when it is irritated or inflamed it deranges them; as the stomach, the brain, the bladder, the testicles, the skin, the thoracic viscera, &c. It also happens that nephritis is unaccompanied by pain in the kidney, while the stomach, the brain, or the bladder may exhibit all the signs of idiopathic disease, while the primary source of disease is the kidney. It is also a fact that diseases of any of the abdominal viscera will derange the kidney, and it may become disordered by metastasis, and especially of gout and rheumatism.

The kidney is very rarely affected with acute inflammation; but is very liable to chronic degenerescences, and also to calculi, sand and gravel.

Suppuration is always preceded by rigors, sometimes as violent as the cold fit of an ague, and the matter is discharged in one of these ways:—1. Through the pelvis of the kidney into the bladder and urethra. 2. Into the abdomen. 3. Externally. 4. Into the intestinal canal.

Dr. Spillan mentioned a case to me of supposed lumbago of several weeks' duration, which was pronounced to be nephritis by Dr. Crampton of Dublin. On the following day, the patient, on attempting to evacuate the bladder, passed a large quantity of pus from the urethra, and lost all his former symptoms. He completely recovered.

Acute nephritis, when idiopathic, generally terminates by resolution, and very rarely proves fatal. But when complicated with calculus in the ureter, bladder or urethra, it generally destroys life. Many illustrative drawings of nephritis, caused by calculus in the kidney, or impacted in different parts of one or both ureters, and en-

larging those tubes to the size of small intestines, and of stone in the bladder, of its impaction in the neck of this organ, and in the urethra, and of stricture of the urethra and prostate gland, will be found in the valuable production of Mr. Crosse, of Norwich, on *Calculous Complaints*. Stricture of the urethra, and disease of the prostate gland, are among the most frequent causes of nephritis in an acute, but especially in a chronic form. Inflammation of the kidney often excites gastritis, gastro-enteritis, or peritonitis, and if both kidneys are affected, a complete suppression of urine takes place, which proves fatal in a few days, by inducing cerebral irritation or congestion. Dr. Laing relates the history of a case in which there was suppression of urine for nine days without proving fatal. When suppression of urine occurs in typhus, the patient is seized with cerebral congestion, and after death a urinous odour is perceived in the brain. Acute nephritis causes such slight derangement in most cases that it is often overlooked; and hence it is allowed to pass into the chronic state, and a permanent change of function is established, which will produce lithic acid, or other deposits, in some cases; an excessive secretion of urea in others, and in more, diuresis or diabetes, or both. These facts are not appreciated; and in the treatment of these diseases, their inflammatory origin is too frequently forgotten.

Morbid Appearances.—On examining an inflamed kidney, we find it of a scarlet or crimson colour; sometimes enlarged, indurated or infiltrated with pus. The ureters in such cases participate in the disease; they are red, and their mucous membrane thickened, covered with pus adherent, so that their canal may be obliterated, in a certain point, in any part of its course, above which the tube will be enlarged. This last appearance is often seen when a calculus is passing from the kidney to the bladder, and when it obstructs the ureter.

Chronic nephritis may exist independently of the acute form of the disease, and is often caused by gravel or sabulous matter in the kidney. The disease is generally designated gravel. The urine, after being voided, and on becoming cool, deposits, in a short time, a gravelly substance, more or less fine, hard and resisting the pressure of the fingers, which is composed of uric acid with animal matter, or of oxalate or phosphate of lime. There are dull or acute pains with a sense of heat and heaviness in the lumbar region, and the urine is voided with more or less pain or difficulty. The digestive organs are deranged; there is acidity of the stomach, with flatulence, after any irregularity of diet, as the use of acescent wines, or drinks, or fruits.

When the disease proves fatal, the morbid appearances are the same as in nephritis. A gravelly substance, similar to that in the urine, is detected in the kidney, ureter, or bladder. The substance of the kidney is, in many cases, of a perfectly natural appearance.

When a calculus is passing from the kidney, through the ureter, it

often produces intense pain and spasm of the bowels, which in this case is termed nephritic colic, though at other times there is no pain or inconvenience. Nature, however, contrary to all human calculation, relieves the patient by expelling the calculus from the kidney through the ureter, bladder and urethra. I have known the passage of a calculus the size of a garden pea occur in the same individual, several times.

It generally happens that there are several small calculi in the same individual; and sooner or later one of these becomes impacted in the ureter, or in the neck of the bladder or urethra; and in the two last cases death will ensue, unless the calculus is removed by the forceps or by incision. This complaint is very common in old gouty subjects. The disease is sure to entail much severe suffering, and will often prove fatal. But when there is no mechanical cause, the prognosis will be more favourable. Disorder of the kidney may be overcome if attacked with proper remedies before structural lesion takes place. But should the kidney continue irritated, it may terminate in calculi or in grey granulation or other degenerescence of structure, as tuberculous hydatid disease. The kidney may be transformed into a kind of sac, which may fill the abdomen, and which may contain a variable quantity of urine. A case of this kind was treated at St. John's Hospital, which was supposed to be ascites; tapping was performed; the abdomen again became tense; death took place; and on the autopsy the enlarged kidney nearly filled the abdominal cavity. Dr. Bright described in his Medical Reports, 1827, an organic change in the kidney of many dropsical patients, consisting (when fully developed) of a deposition of a yellowish granular matter in its texture, which he invariably found accompanied with an albuminous state of the urine during life. He hazarded the opinion that there were three forms of this disease. In the first, the kidney is soft and of a mottled yellow externally, the cortical part yellowish grey, and the tubular pale. In the second stage the cortical part was converted more or less into a granulated texture, with a copious white interstitial deposit; and in the third stage these granulations were increased, were of a yellowish, red, or purplish colour, projecting externally, so as to render the surface of the kidney rough, and producing a semi-cartilaginous hardness of the whole gland, the tubular portions being drawn towards the surface. This disease was attended by pain across the loins, and upper part of the abdomen, and by sickness and vomiting. During its progress there was a strong tendency to inflammation of the serous and mucous membranes, and to effusions of blood and serum in the brain. In a subsequent paper in Guy's Hospital Reports, 1836, the complications now mentioned are fully described, as the following heads of cases attest Albuminous urine; death, with convulsions.—Kidneys degenerated, death, with convulsion and coma.—Kidneys granulated.—Albumi-

nous urine of four or five years continuance; death, with convulsion and apoplexy.—Kidneys degenerated.—Albuminous urine; death from peritonitis.—Kidneys diseased.

The specific gravity of the urine was very low, in consequence of a deficiency of urea and salts. Dr. Bright considered in his original work that this organic change was secondary, induced by causes which acted through the medium of the stomach and skin. The great tendency to inflammation of other organs, led him to recommend blood-letting, cupping on the loins to alleviate the local disease. He preferred the supertartrate of potass, and employed all diuretics occasionally, except mercury. This pathology is now established. Drs. Christison and Gregory confirmed the accuracy of Dr. Bright's conclusion. They subsequently published an account of eighty-seven cases treated in the Royal Infirmary of Edinburgh, which proved the connexion between organic renal disease and albuminous urine. The granular state of the kidney was observed in every case in which an autopsy was permitted. Dr. Gregory, however, established that dropsical effusion was not an essential, though a frequent symptom, for, out of eighty cases, there were twenty-two in which it was absent.*

Dr. Osborne of Dublin, in his valuable work on dropsies, 1835, describes eighty-four cases with coaguable urine, and powerfully supports Dr. Bright's conclusions. In nine cases the autopsies presented diseases of the kidneys, and the similarity of symptoms of causes and collateral circumstances proved the existence of the same disease. In numerous cases of dropsies connected with diseased liver, impediments of circulation or respiration, or general debility, which terminated fatally, in which the urine was examined before death, and found not to coagulate, the kidneys were found free from disease; also cases ending fatally, but unconnected with dropsy, in which the kidneys were healthy, and the urine did not coagulate. "In no one instance," says Dr. Osborne, "have I met with coaguable urine without diseased kidneys, or healthy kidneys with coaguable urine."

It is worthy of notice, that Dr. Wells and Dr. Blackhall anticipated Dr. Bright. They give the histories of nine cases of dropsy with dissections, in which albuminous urine existed during life, and the kidneys were found diseased; but preconceived opinions on the nature of dropsy prevented these observers from tracing the connexion. Dr. Darwall met with one case of dropsy accompanied with coaguable urine, in which the kidneys were perfectly sound. It is also urged that albumen exists in healthy urine of those in perfect health, after taking indigestible food, or using mercury; but if it exist in such circumstances it does not coagulate by heat. Mr. Hamilton has detected disease of the kidneys in anasarca consequent on scarlatina when the urine was coaguable.†

* Edinburgh Medical and Surgical Journal, vol. xxxvii.

† *Op. Cit.*, vol. xxxix.

Dr. Osborne adduces many satisfactory reasons to prove that the most common cause of this disease of the kidney is a suppression of the healthy secretion of the skin, effected by cold. In twenty-two out of thirty-six cases the disease could be referred to suppressed perspiration. Whenever general perspiration came on spontaneously, or was induced by medicine, the cases always terminated favourably.

"The next frequent cause is the abuse of diuretic drinks and medicines. Of thirty-six cases ten occurred in confessed drinkers of ardent spirits."

Dr. Osborne is entitled to the greatest merit for explaining the cause of this organic renal disease and the rationale of a judicious and successful plan of treatment. He further informs us, that "of the thirty-six patients, eighteen laboured under bronchitis in different degrees of intensity; eleven had gastro-enteric inflammation, denoted by thirst, vomiting, or diarrhœa; and the two diseases were in six instances combined in the same individuals. Thus it appears, that nearly two thirds of the entire number laboured under inflammation of the mucous membrane."

Dr. Gregory mentions that diarrhœa and vomiting were amongst the most constant symptoms, in forty-six out of eighty patients; but they existed "without any distinct signs of inflammatory action."—*Op. Cit.*

Dr. Osborne clearly shows the close analogy between this organic renal disease and diabetes. Thus both are frequently caused by cold so applied as to check perspiration; the skin is dry in both, with a disordered secretion of urine; and in both the restoration of perspiration greatly contributes to the cure. But in diabetes the quantity of urine is greatly increased; for as the skin no longer perspires, and as the bowels are either constipated or not relaxed, the only exit for the superfluous secretion is through the kidneys.

But in the organic renal disease, neither the skin nor kidneys are outlets for the superfluous matter, for the skin no longer acts, and the urine, which is often scanty, is always deficient in solid matters, (salts and urea,) and the dropsical effusion into the cellular tissue or serous cavities is the result. When the mucous surfaces are irritated or inflamed, and cause catarrh or diarrhœa, and secrete freely, the superfluous fluid which in the normal state would have passed by the skin and kidneys, is in some degree evacuated from the system.

If these secretions from the mucous surfaces so constantly co-exist with renal disease, as shown by Dr. Gregory and Dr. Osborne, are channels through which the superfluous excretions are evacuated, which naturally pass through the skin and kidneys, it follows that the restoration of the functions of the skin will be one of the best means of relieving the catarrh or diarrhœa; and the obstinacy of these symptoms to ordinary remedies during the existence of the primary renal disease is at once explained.

Dr. Osborne has adapted his practice to this conclusion, and with complete success.

“ When a patient was placed under my care, with general œdema, coagulable urine, and dry skin, I directed him to be kept in bed, in order to maintain warmth of the surface, which is usually disposed to be cold. It has happened frequently that by external heat alone, an improvement both in the quantity and quality of the urine, and a material subsidence of the œdema, have taken place. The first medicine ordered was usually a purgative ; and in the choice of this, in order to avoid ambiguity as to its mode of action, I abstained from the use of all those articles which are reputed diuretic ; such as compound powder of jalap, or supertartrate of potash ; and I generally employed the senna mixture. I then commenced a diaphoretic course, by administering foot-baths, hip-baths, or general baths ; the last either of water or of vapour, according as they appeared to agree best with the individual case, at night at the hour of going to bed. The patient also took at night eight grains of pulv. Jacob. ver. four of pulv. ipecac. c. opio, and ten grains of confect. aromat.

“ The usual drink was barley-water. In case, however, of tendency to stupor, or headach, the Dover’s powder was omitted, or given in smaller doses. In one case, in which no perspiration was produced by the above and other means, it followed the use of the following mixture :

“ R. Aq. Acet. Ammon. $\overline{3}$ iv ; Sulphur. Subl. $\overline{3}$ j ; Vini Ipec. $\overline{2}$ j ; Ext. Opii aq. gr. ij ; Aquæ Fœnic. dulc. Syrup. Sacch. empyreumat. ntriusque $\overline{3}$ ij, one ounce to be taken every hour.

“ When the vapour bath was not attended with perspiration, from want of reaction on the part of the patient, he was directed to take, while in it, two drachms of the Tinct. Guaiaci Ammoniat ; when, however, (as sometimes happened,) both vapour and water baths produced coldness of the extremities, they were discontinued.

“ When there was a continued tendency to coldness of the surface, unaccompanied by feeble action of the heart, the diaphoretic preferred was Tinct. Guaiaci Ammoniat. $\overline{2}$ j ; Sulphuris Loti $\overline{2}$ j ; Mist. Camph. $\overline{3}$ j ; Sp. Piment. $\overline{3}$ ss., or the following :

“ R. Carbon. Ammon. $\overline{3}$ ss ; Mist. Camph. $\overline{3}$ vj, an ounce to be taken every two hours.

“ In connexion with these remedies, administered in the evening with a view to procure a perspiration during the hours of sleep, warm applications were kept up during the day, and frequently a succession of bags of hot salt was maintained, when the heat of the extremities could not be otherwise preserved. When perspiration was restored in one part of the body, as in the trunk, but not in the limbs, the latter were rubbed several times during the day with an infusion of two drachms of bruised mustard seeds in distilled vinegar, with Naphtha, or some other suitable stimulating embrocation.

" Having never failed in removing this kind of general dropsy whenever the entire surface of the body was restored to a perspiring state, it is not surprising that I should bestow the utmost attention on this part of the treatment.

" Next in importance to the restoration of the function of the skin, and indeed in most cases expedient, as contributing to that great object, was bloodletting."

In some cases cupping or leeching on the loins was employed, with vesication effected by means of lint moistened with tincture of lytta and covered with oiled silk. This acts rapidly, was applied in rapid succession, and the vesication dressed with iodine ointment.

Whenever purgatives were necessary they were administered in the morning, so as not to interfere with the diaphoretics. As relapses are caused by exposure to cold, flannel should be worn next the skin, and frictions and baths employed when the skin becomes dry. When circumstances permit, a residence in a warm climate is advisable.

Bandages should be applied to the legs during convalescence, and exercise should be carried to perspiration, when the strength allows it.

When the renal disease is complicated with other complaints, additional remedies will be required.

In dry bronchitis, copaiba and tinct. cubeb. in small doses were beneficial; and when expectoration was copious for a long time, and impeded respiration, one grain of acetate of lead, and a quarter of a grain of opium diminished the secretion and irritation.

Leeches to the larynx unloaded the bronchial tubes, and caused a cessation of cough and dyspnoea. Irritation of the stomach and bowels was relieved by leeches, warm applications, and a diet of rice and arrow-root.

Dysentery, commencing by tenesmus and general excitement, was most speedily relieved by an enema of four grains of nitrate of silver, and eight ounces of water, followed in three hours by another of starch and laudanum.

When pericarditis was urgent, it was relieved by tartarized antimony, and internally with local and general bleeding.

In valvular disease of the heart, a small quantity of tinct. digitalis, with carb. ammoniæ, camphor and Hoffman's liquor was followed by diminution of the heart's action, a sense of general relief, and a refreshing sleep. In diseased aortic valves, a large issue over the region of the heart was most advantageous.

When ascites follows chronic peritonitis or indurated liver, and intractably remains after the general œdema is removed, Dr. Osborne recommends the following measures, which in his hands have rendered tapping seldom necessary. They may be continued when mercury and drastic purgatives are abortive, and the declining strength of the patient forbids such powerful remedies.

“ These are the repeated application of leeches to the rectum, so as to unload the vessels of the *vena portæ*. The applications of various stimulants to the abdomen, as, 1st, An ointment composed of equal parts of iodine, mercurial, and cantharides ointments. 2dly, A paste formed of Spanish soap, spread upon linen, and sprinkled over with muriate of ammonia immediately before being applied; which, by the chemical decomposition that ensues, and the consequent gradual extrication of ammonia, produces heat and redness; 3rdly, Sinapisms, suffered to remain till the pain becomes urgent. These have the advantage of healing with great rapidity. 4thly, Frictions of six or more drops of croton oil. These are, however, rather uncertain; in some individuals producing no effect, and in others followed by erysipelas, extending beyond the seat of the application. 5thly, A mixture composed of one part of tincture of digitalis, and two of *aqueæ muriat. calcis*; a teaspoonful to be rubbed on the abdomen, morning and evening. This compound appears to excite the absorbents, and increases the discharge from the kidneys, but does not produce any sensible redness of the skin.”

Tinnitus aurium, watchfulness, delirium, stupor, or headach, with increased heat of the head, are formidable symptoms, as death is frequently produced by a low form of arachnitis. Under such circumstances Dr. Osborne recommends, besides bleeding from the temporal artery and by leeches, the free exhibition of calomel, followed by brisk purgatives.

Nephritis may be followed by scirrhus or cancer of the kidney, and excite irritation or inflammation in the viscera of the head, chest, and abdomen, produce marasmus and death.

A free use of carbonate of soda in barley-water, or with tartaric acid as an effervescing, or in porter, will be used with advantage. I have used from four to eight drachms in one day in a severe case. When lithic acid is deposited in the urine, indicated by a red or brick-dust coloured sediment, the following mixture will be found an excellent corrective:—

R. *Liquor. Calcis* ℥viiss; *Liquor. Potassæ* ℥iiss—ij; *Magnesia Calcin.* ℥j; *Mellis* ℥j; *Olei Menthæ Pip.* ℥v; Dosis coch. ampl. ʒ. 4ve in die.

When the phosphates are deposited, the mineral acids, as sulphuric, muriatic and nitric, properly diluted, may suddenly prevent this deposit. This alternation of alkalis and acids is equally effectual in pyrosis, according as the ejected fluid is acid or alkaline.

Persons affected with lithic acid deposition should live on vegetable food, as Magendie has shown that this acid is in proportion to the quantity of animal food taken and the quantity of azote afforded by it.

When disease of the kidney or gravel is induced by the disappearance of eruptions, or the suppression of long-established eva-

cuations, as hæmorrhage from the bowels, rectum, (piles,) stomach, lungs, or nose, counter-irritation should be employed to re-establish the former disease. Setons and issues are also useful in the region of the affected kidney.

Nephralgia or Neuralgia of the kidney, is a common disorder to sedentary persons. It may continue for months or years without any disorganization. In a late consultation with Dr. Elliottson, he mentioned a case of this kind which has continued for twenty-six years, and Mr. Costello has also informed me of some others.*

In calculus of the kidney, nephrotomy was suggested, but is never employed at present.

In addition to the treatment of acute and chronic nephritis and other diseases of the kidney already described, it will be sometimes necessary in cases of gravel to employ leeching, fomentations, warm-baths, mucilaginous drinks, enemata, mild or low diet, rest of body, and tranquillity of mind.

When a calculus is passing along the ureter, there will be an intense pain or colic, or a dull pain along the affected ureter and spermatic cord on the same side, with retraction of the testicle.

In this case a full dose of morphia, or an opiate enema, will often afford relief, the warm-bath with fomentations on the abdomen and loins, and if the nephritic pain or colic is violent, venesection, leeching, and counter-irritation are necessary. When these means fail an opiate suppository often affords relief. The quantity ought not to exceed two grains of solid opium, repeated once or twice in twenty-four hours, and its effects on the brain being at the same time carefully observed. I am much surprised at the quantity advised by Dr. Dewees in his *Practice of Physic*, 1833: "Six or eight grains, or even more, according to the emergency of the case, of powdered opium should be made into the form of an elongated pill, with a rich mucilage of gum arabic, and be permitted to dry. When sufficiently hard, it should be forced beyond the sphincter ani into the rectum, and allowed to remain. This may be repeated once in four or five hours if necessary."

I should fear to adopt this practice, for I have known a member of the legislature who was poisoned by half the quantity, after one application. It is also well known, that a much less quantity of opium than a drachm of the tincture of that medicine mixed with

* In nephralgia and gravel, exercise, which throws the muscles of the back into action, as walking, riding on horseback, shuttlecock, battledoor, &c. &c. is beneficial.

Calculus in the bladder is now consigned to the surgeon, and relieved by the operations of lithotrity and lithotomy. The urgent symptoms caused by it will require the same plan of treatment as in chronic nephritis or gravel.

starch may induce narcotism and death. The late Baron Dupuytren was the first to establish this fact.

I am ready to admit that the urgency of pain justifies very large doses of sedatives; but great caution is required not to exceed a proper quantity. In my own practice I order twenty drops of common tincture or of the sedative solution of opium, or an adequate proportion of morphia with three ounces of thin starch mucilage as a clyster, and repeat it according to the urgency of symptoms.

TREATMENT.—*Indications*.—The same as in the other phlegmasiæ.

They are to be fulfilled by,

1. General and local blood-letting; the latter either by the use of cupping-glasses, or by the application of numerous leeches to the region of the kidney [or perinæum.]

2. Oleaginous cathartics of castor oil, manna, or oil of almonds: frequent emollient clysters.

3. Mild diaphoretics, especially frequent and copious draughts of mucilaginous and diluent liquids, as barley-water, solution of acacia, or gum arabic, decoction of marsh-mallows, linseed tea, with a little nitre.

4. Opiate clysters when the fever is somewhat abated and the pain excessive, [as starch and laudanum.]

R. Decocti Hordei fʒvj: Tincturæ Opii fʒj: Fiat enema.

5. The warm hip-bath, repeated according to the violence of the pain; and fomentations to the region of the kidney.

6. A decoction of the dried leaves of the amygdalus persica, the peach tree, drunk in the quantity of a pint a day, has been found useful in this disease.

[Anodyne embrocations, as the camphorated oil and morphia applied over the region of the kidney when the acute symptoms have abated, may be tried with advantage. An issue or seton should be inserted in chronic cases. In dyspeptic subjects assafoetida, æther, and opium, often afford relief. The alkalies, as soda, potass, and lime-water, are useful. When the urine contains lithic acid; and the mineral acids when the phosphates are deposited.]

The treatment of nephritis differs very little from that of enteritis, with the exception of the use of blisters. These are generally considered as improper, because they frequently induce strangury, which mostly increases the inflammation of the kidney; but they have been applied with decided benefit in cases where the patients did not usually suffer from strangury.

A tablespoonful of olive oil in syrup has often relieved pain, according to Martinet. The uva ursi and pariera brava in decoction, in the proportion of an ounce of each to a pint of water, are often beneficial. Dose ʒj twice or thrice a-day. Decoction of linseed or flax-seed, improperly called tea, may be used freely; for

example, a pint or two every day. The balsam of copaiba is very beneficial when all signs of inflammation have disappeared.

R. Olei Olivæ ʒss; Syupi Simplicis ʒj: Fiat haustus tertia hora sumendus.]

CYSTITIS.—INFLAMMATION OF THE BLADDER.

Species.—*Cystitis acuta.*—2. *Cystitis chronica.*

SYMPTOMS.—Pyrexia, acute pain, tension, and tumour in the region of the bladder; pain and soreness, increased upon pressure, above the pubes, or in the perinæum; micturition, painful discharge of urine, in small quantities; or complete obstruction to its passage; tenesmus; vomiting.

In the chronic form, the mucous membrane of the bladder, by repeated or continued irritation, produced by calculus, by stricture, by the disease of the prostate, kidneys, or other causes, has become thickened, indurated, ulcerated; and pours out a large quantity of mucus and pus; which, added to the urine, gives to it the appearance of whey. There is often a discharge of blood.

CAUSES.—Mechanical injury; local irritation by calculus; the inflammation of gonorrhœa extended along the urethra; spasmodic or permanent stricture; all the usual causes of inflammation, [stimulant urethral injections, falls on the abdomen when the bladder is distended.]

TREATMENT.—The *indications* in the *acute* species are the same as in the other phlegmasiæ, and are to be fulfilled nearly in the same way:—

1. By general and topical blood-letting, the application of leeches to the perinæum and region of the pubes.

2. By oleaginous purges and emollient clysters.

3. The warm bath and fomentations.

4. The exhibition of opium with diaphoretics.

5. The other means recommended in nephritis.

[Catheterism must not be forgotten, and the instrument should be left in the bladder, unless it cause irritation. When cystitis is caused by cantharides, large doses of camphor and hyoscyamus are valuable, and may be administered by the mouth and rectum.]

The *chronic species* yields mostly to stimulants, and injecting the bladder with emollient decoctions.

[Chronic disease of the bladder may depend on fungus or ulceration of the organ, on stricture at its neck, on disease of the prostate gland, ureters, or kidneys; and when it attacks aged persons, and especially if intemperate, it often proves fatal. When persons above the age of fifty are infected with blenorhagia, or, as it was formerly termed, gonorrhœa, the inflammation frequently extends along the whole urethra, to the neck of the bladder, and to the

mucous membrane of the organ. Such persons complain of pain in the loins, bladder, and urethra, suffer intense pain, and are frequently destroyed by acute or chronic inflammation of the bladder, or some other portion of the urinary organs.

The other diseases of these organs are Diabetes, and Hæmaturia.

R. Copaibæ f $\overline{5}$ ss; Vitellum Unius Ovi, Sacchari Purificati $\overline{5}$ j: His bene subactis terendo, adde paulatim. Aquæ Menthæ Viridis f $\overline{5}$ vj: Ut fiat emulsio, ejus capiat æger cochlearia tria magna ter in die.

R. Terebinthinæ de Chio gr. iii; Saponis Duri gr. iv.; Pulveris Calumbæ q. s.: Fiant Pilulæ duæ ter in die sumendæ.

[R. Camphoræ Pulveris gr. iij; Extracti Hyoseyami: gr. ij: Fiat pilula tertiâ, quartâ, vel sexta horâ sumenda.]

R. Infusi Buchu $\overline{5}$ vj; Tincturæ Ejusdem $\overline{5}$ j; Tincturæ Cubebæ $\overline{5}$ iss; Liquoris Potassæ $\overline{5}$ i; Syrupi Aurantii $\overline{5}$ i: Fiat mistura ejus sumatur cochleare amplum ter in die.]

R. Olei Lini Recentis f $\overline{5}$ ss; Liquoris Calcis f $\overline{5}$ iv: Misce pro injectione, per urethram in vesicam injicienda.

R. Amyli $\overline{5}$ ij; Aquæ Ferventis f $\overline{5}$ v; Tincturæ Opii f $\overline{5}$ j: Fiat injectio.

R. Liquoris Plumbi Acetatis f $\overline{5}$ jss; Olei Lini Recentis f $\overline{5}$ ss; Liquoris Calcis f $\overline{5}$ iv: Fiat injectio.

One half, or the whole of one of these injections, according to the capacity of the bladder, should be passed into it, by means of an elastic gum bottle and catheter, twice a-day. [Civiale, Costello, and Heurteloup prefer decoction of marsh-mallows with laudanum. In chronic cases, the antimonial ointment should be rubbed over the pubis, or a blister applied, or a seton inserted in the perineum. It is important that the feet be kept warm by appropriate means.]

DIABETES.—IMMODERATE FLOW OF URINE.

SPECIES.—1. *Diabetes mellitus*; with urine of the smell, colour, and taste of honey.

2. *Diabetes insipidus*; with limpid urine, not sweet.

CHARACTER.—Frequent discharge of urine; insipid in the one species, in the other, containing a large portion of saccharine and other matter, voided in a quantity far exceeding that of the aliment or fluid introduced; continued thirst; generally a voracious appetite; impenetrably dry skin; swelling of the legs; gradual emaciation of the whole body; hectic fever.

CAUSES.—*Predisposing*.—Constitutional weakness; the decline of life; preceding diseases, as hysteria, hypochondriasis, dyspepsia, asthma.

Exciting.—All those causes inducing debility of the system in general, and of the chylo-poietic organs in particular; abuse of

spirituous liquors; cold applied to the body; excess in venery; immoderate evacuations; crude farinaceous diet.

Proximate.—According to Drs. Dobson, Cullen, and Rollo, it is an impaired action or morbid change in the natural powers of digestion and assimilation.—See p. 357.

TREATMENT.—The following has been found most successful:

1. A diet consisting wholly of animal food; abstaining rigidly from every kind of vegetable matter.

2. Emetics exhibited occasionally.

3. Diaphoretics; the pulvis ipecacuanhæ compositus, recommended by Dr. McCormack in the *Medical Commentaries*; antimonial wine with opium, by Dr. Rollo.

4. Alkalis: soda-water; hepatised ammonia, used by Dr. Rollo; liquor ammoniæ; sulphuretum potassæ. [Antimonial ointment, or warm baths, with an ounce of tartarized antimony in each, suggested by the fact, that the accidental occurrence of psora had cured the disease. Dr. Sharkey, of Cork, has succeeded with phosphate of soda.—*Dublin Medical Transactions*. Strychnine has been lately tried unsuccessfully.]

R. Liquoris Ammoniæ ℥vj; Aquæ Cinnamomi fʒv; Aquæ Destillatæ fʒx; Syrupi Zingiberis fʒj. Fiat haustus ter in die sumendus.

R. Sulphureti Potassæ gr. x; Conservæ Rosæ q. s.; Fiat bolus ter in die sumendus.

R. Sulphureti Potassæ gr. x.; Syrupi Zingiberis fʒij; Aquæ Cinnamomi fʒx: Fiat haustus ter in die sumendus.

5. Blisters and issues to the region of the kidney.

6. Astringents and tonics: alum, kino, catechu, sulphuric acid, nitric acid, lime-water, alum-whey, bark, myrrh, chalybeates, as directed for the cure of dyspepsia.

7. Opium, in large doses.

8. Tincture of the blistering fly; Dr. Brisbane.

9. Covering the body with flannel, and the warm bath.

10. Anointing the skin with camphorated oil.

SPLENITIS.—INFLAMMATION OF THE SPLEEN. HYSTERITIS.—METRITIS.—INFLAMMATION OF THE UTERUS.

These diseases are characterized by inflammatory pyrexia, with tension, heat, swelling and pain in the regions of the viscera they occupy, which is increased on pressure.

In *splenitis*, it is the left hypochondrium, and the pathognomonic symptoms of nephritis are wanting.

In *hysteritis* the tension and pain are in the hypogastrium, and do not arise from a distended bladder; the os uteri is painful to the touch; and there is vomiting.

The causes and treatment are so similar to those of the different

phlegmasiæ already considered, and more particularly to nephritis, that a repetition is unnecessary.

[Iodine used internally and externally has been found an effectual remedy for induration of the spleen.—See Scrofula.]

CHLOROSIS.—RETENTION OF THE MENSES.

SYMPTOMS.—Heaviness; listlessness to motion and fatigue on the least exercise; palpitations of the heart; pains in the back, loins, and hips; flatulency and acidity in the stomach and bowels, and many symptoms of dyspepsia.

The appetite is singularly depraved; lime, chalk, and other absorbents are greedily eaten, when the accustomed food is rejected. As the disease advances, the lips lose their colour; the eyes are encircled with a livid areola; the face becomes pale, assumes a yellowish hue, and the whole body has a leucophlegmatic appearance, with every indication of want of power and energy in the constitution. The feet are affected with œdematous swellings; the breathing is hurried by the slightest exertion; the pulse is quick but small; the patient is affected with various symptoms of hysteria, cough, and sometimes confirmed hectic fever, (see *Manual of Midwifery*, 1832.)

CAUSES.—Debility or laxity of the constitution in general, and of the uterine system in particular.

TREATMENT.—*Indications.*—I. To invigorate the system in general.

11. To excite the action of the uterine vessels.

To fulfil the first indication,

1. A nutritive diet, and the moderate use of wine; regular exercise on horseback, taking care not to induce fatigue; cheerful society.

2. An emetic of ipecacuanha, or sulphate of zinc.

3. Gentle aperients of aloes, myrrh, and bitters.

R. Pilulæ Aloes cum Myrrha ʒj; Hydrargyri Submuriatis gr. iij: Fiat pilulæ xij, quarum sumat agra una vel duas pro re nata.

R. Pulveris Aloes cum Ferro ʒj; Saponis Duri ʒij; Syrupi Zingiberis q. s.: Fiat massa in pilulas xxiv, dividenda, quarum sumantur due alterna quaque nocte.

R. Extracti Gentianæ, Extracti Colocynthis Compositi, āā ʒss: Fiat pilulæ xij: sit dosis due pro re nata.

4. Tonics, especially preparations of iron, either alone, or joined with myrrh, quinine, Peruvian bark, cascarilla, quassia, gentian; tansy, chamomile, and aromatics; adding an alkali, where it is chemically advisable, to obviate cardiac symptoms: the best chalybeates are, the sulphate of iron, the muriate of iron, ammoniacal iron, and tartarized iron, as in dyspepsia.

R. Extracti Glycyrrhizæ Concisi ʒij; Aquæ Puræ fʒxvj: Coque et cola.

R. Myrrhæ ʒij; Ferri Sulphatis gr. xxiv.; Potassæ Subcarbonatis ʒj; Mucilaginis Acaciæ ʒss; Decocti Glycyrrhizæ, Supra Præscripti, Ferventis fʒxiv; Tinctura Zingiberis fʒj: Myrrham et ferri sulphatem cum potassæ subcarbonate et mucilagine tere donec perfecte commisceantur, dein gradatim adde decoctum et denique tincturam.

This mixture is an improved recipe on that of Dr. Moses Griffith: the dose is three spoonsful two or three times a-day. Similar to this is the *mistura ferri composita*.

R. Pilulæ Ferri cum Myrrhæ ʒss: Fiant pilulæ duæ bis terve in die sumendæ.

R. Extracti Tanacetii ʒjss; Ferri Sulphatis ʒj: Fiant pilulæ xxiv. quarum capiat duas ter in die.

R. Extracti Tanacetii ʒj; Ferri Tartarizati ʒjss; Pilulæ Galbani Compositæ ʒss: Fiat massa in pilulas xxxvj dividenda, è quibusumat ægra tres ter quotidie.

R. Ferri Sulphatis gr. xij; Extracti Gentianæ ʒj; Pulveris Cinnamomi Compositi ʒss: Fiat massa in pilulas xvij dividenda, quarum capiat ægra duas ter in die, superbibendo haustum infusi alicujus amari.

R. Ferri Tartarizati ʒj; Extracti Anthemidis ʒjss; Balsami Peruviani q. s.: Fiat massa in pilulas xxxvj dividenda, è quibus capiat ægra quatuor bis terve indies.

R. Tincturæ Ferri Murialis ʒijj: Cujus adhibeantur guttæ sex ter quaterve die ex poculo alicujus liquoris idonei, infuso theæ excepto.

5. Sea bathing, cold bathing, and the internal use of the Bath, Tunbridge-wells, Pyrmont, or Spa waters. [It is extremely bad practice to exhibit emmenagogues unless the patient is developed and the general health good; for if there is defective development, the uterus cannot perform its functions. When the health is restored, the uterus, like all other organs, will perform its functions. Dr. London applied two leeches to the lower part of each breast every second day for a month, and at the end of the third week there was great turgescence, and the menses soon appeared.]

The other indication is best answered,

1. By walking, jumping, dancing, frequent friction; pediluvium; semicupium; heat applied by steam, or otherwise, to the region of the uterus.

2. By gentle electric shocks through the pubic region.

3. By purges that act especially upon the rectum; as aloes and scammony.

R. Extracti Aloes Socotrinæ ʒj; Lactis Communis ʒvj: Solve pro enemate bis in septimanis adhibendo.

R. Scammonie Pulverisatæ ʒss; Saponis Duri ʒjss; Aquæ Ferventis fʒviiij: Fiat enema quarta quaque nocte injiciendum.

R. Tincturæ Aloes Compositæ f $\overline{3}$ ss : Pro dosi alternis auroris.

R. Pulveris Scammoniae $\overline{3}$ ss ; Hydrargyri Submuriatis $\overline{5}$ j ; Extracti Coloeynthidis $\overline{5}$ j ; Syrupi Zingiberis q. s. : Fiat massa in pilulas xij, dividenda, quarum tres pro dosi sumendæ.

4. By Spanish flies, hellebore, and savine.

R. Tincturæ Cantharidis f $\overline{5}$ ij ; Tincturæ Cardamomi f $\overline{5}$ iv : Misce : ejus sumat agra guttas lx, vel cochleare minimum ter in die ex quovis vehiculo idoneo.

R. Extracti Hellebori Nigri $\overline{5}$ j ; Extracti Gentianæ $\overline{5}$ ij : Fiant pilulæ xij, quarum sumantur duæ nocte maneque.

R. Pulveris Myrrhæ Compositi $\overline{5}$ ss ; Balsami Peruviani q. s. : Fiat bolus ter in die sumendus.

5. By inhaling two gallons of oxygen gas mixed with one of common air, twice a-day.

[The secale cornutum in decoction $\overline{5}$ ij to $\overline{5}$ vij of water, with decoction of aloes and the mistura ferri composita, in the proportion of four ounces of each, is a valuable remedy ; when the digestive functions are restored to a healthy condition.—See Ryan's *Manual of Midwifery*, third edition, 1832.

A drachm of liquor ammoniæ, with a pint of milk, injected into the vagina daily, is a valuable remedy. *Op. Cit.*—The best mode of treatment is to regulate the bowels, improve the general health by tonics, chalybeates, and exercise, and to avoid emmenagogues.]

RHEUMATISMUS.—RHEUMATISM.

Species.—1. *Rhenmatismus Acutus.*—2. *Rhenmatismus Chronicus.*

Symptoms of the acute.—Lassitude and rigors succeeded by fever, a hard, full and quick pulse, and all the usual symptoms of synocha ; sense of weight, and coldness of the extremities ; great restlessness ; obstinate costiveness ; after a short time, (in the course of one, two, or three days,) inflammation, with acute pain, tumour, and tension, makes its appearance in one or more of the larger joints of the body. The pain is transitory, shifts from joint to joint, and leaves the part it occupied swollen, red, and extremely tender to the touch. The pulse is full, and hard ; the blood, when drawn from a vein, exhibits the inflammatory surface or buffy coat ; the tongue preserves a steady whiteness ; the body is usually obstinately costive ; the urine high-coloured ; sometimes there is profuse sweating, unattended by relief.

Of the chronic form.—The chronic form of rheumatism may be either a consequence and termination of the acute ; or it may be independent of it. In the first case, the parts which were affected with inflammation are left weak, rigid, in some instances œdematous ; and the pain, before moveable, is now usually confined

to particular parts; sometimes, however, it still shifts from joint to joint, but without occasioning any inflammation or fever. In the latter, from exposure to cold, or other cause, pains arise in the head, shoulders, knees, loins, wrists, or other parts; which often continue for a considerable time, and at length go off, leaving the seat they occupied in a state of debility. [When it attacks the muscles of the loins, it is termed lumbago; those of the inferior extremity, extending from the hip to the knee, or from this part to the ankle, along the course of the sciatic nerve, it is called Sciatica. It suddenly leaves any part, and seizes upon another, as the heart, pericardium, membranes of the brain, pericranium, muscles of the scalp, neck and trunk and inferior extremities. It may implicate the uterus and all fibrous tissues. When it is confined to the joints it is termed articular rheumatism; and when such cases prove fatal, the whole tissues of the joint are found inflamed and covered with pus. The synovial membrane and articular cartilages are often involved in the inflammation.] When relieved by cold and increased by heat it is inflammatory; and when increased by cold and relieved by heat, it is not inflammatory: the first requires depletion; the second, guaiacum and warm bath.—*Elliotson's Clinical Lectures, London Medical and Surgical Journal*, 1832, vol. ii. p. 550.—Dr. Graves denies this pathology.—*Op. Cit.*

When there is sudden pain in the region of the heart during rheumatism, with laborious respiration and irregular pulse, the heart itself or the pericardium is inflamed, and the foundation of many diseases of the centre of the circulation is laid.—See Carditis, Pericarditis, &c. pp. 191—247.

CAUSES.—Obstructed perspiration; occasioned either by wearing wet clothes, lying in damp linen, or damp rooms, or by being exposed to cold air, after having been much heated by exercise. [The seat of the inflammation is still disputed. It is said to attack the muscles in which abscesses are sometimes formed, as also the tendons, fascia and synovial tissue; but in the chronic form, no lesion can be found.]

DIAGNOSIS.—The pathognomonic symptoms are, synocha, with pains and inflammation of the larger joints, under which the integuments become distended, smooth, and of a particular pale red colour.

From podagra.—By its generally attacking the larger joints only; by the pain shifting its seat, and following the course of the muscles in its translation to other parts; by the disease not having been preceded by symptoms of dyspepsia; by its occurring at any period of life; whereas gout is usually confined to the adult period. [It may be confounded with neuralgic affections; but the history of the case will enable us to form an accurate diagnosis.]

PROGNOSIS.—*Favourable symptoms.*—A general, but not unnaturally profuse, perspiration; the deposit of a lateritious or furfuraceous sediment in the urine; eruptions on the skin; moderate hæmorrhage of florid blood from the nose or other parts.

Unfavourable.—The inflammation becoming erysipelatous, and assuming a dark red, or rose colour; and this followed by vesications, delirium, pale urine, metastasis of the inflammation to the head, chest, abdominal viscera, heart, diaphragm; producing the symptoms of the idiopathic diseases of these organs.

TREATMENT.—*Of acute rheumatism.*—The *indications* are the same as those of the other phlegmasiæ, and are to be fulfilled,

I. By general and topical *blood-letting*.

Most practitioners recommend general bleeding to be had recourse to in all cases where the vascular action is strong, the heat considerable, the constitution robust, and the patient not advanced in years; and they repeat it according to the violence of the symptoms, the firmness of the coagulum, and the appearance of the blood previously drawn: just as against acute inflammation of the viscera.

The reduction of vascular action is more particularly to regulate the repetition than the buffy appearance of the blood, which in many cases continues to increase, notwithstanding the abstraction of blood, and is not diminished by bleeding. Topical blood-letting by leeches, and cupping, is also directed by those who favour the abstraction of blood, when the disease produces considerable pain and tumefaction about a joint or limb.

Other practitioners are averse to bleeding in the cure of this disease, and never direct it generally or topically unless some internal part becomes affected. [When the brain, the lungs, the heart, or the uterus, or any internal viscus is seized with pain in the course of an attack of acute rheumatism, the liberal abstraction of blood is universally recommended, and regulated precisely in the same way as against inflammation of these organs. In most cases leeches should be applied over the joint, and afterwards a poultice sprinkled with laudanum.

In articular rheumatism, when the joint is hot and painful, though not red, or when red, a sufficient number of leeches should be applied around it, and afterwards emollient and narcotic fomentations and cataplasms, and after purgation, diaphoretics combined with sedatives. When there is no gastric or intestinal irritation, tartarized antimony may be given to the amount of six, eight, twelve or more grains in the course of the day.—See p. 99. It is essential to combine this medicine with syrup of poppies and mucilage of acacia to prevent it from irritating the stomach too much. It ought not to be continued longer than a week.

Diaphoretics seldom succeed, except in slight cases.

In fibrous rheumatism, when a muscular or fibrous tissue is affected, the local abstraction of blood by cupping or the application of leeches, over whose bites cupping glasses are applied, is highly beneficial, in fact, few cases of pleurodynia, see p. 263, lumbago, or stiff neck withstand it.

Fibrous rheumatism is generally cured by vapour-baths, simple or medicated sulphureous baths; friction with the liniments al-

ready mentioned; the application of hot narcotic fomentations or cataplasms or sinapisms over the affected part.]

II. By occasional *purgatives* of sulphate of magnesia, sulphate of soda, tartrate of potass, the supertartrate of potass, rhubarb, senna, castor oil, and the submuriate of mercury, or any of the purgatives recommended against inflammatory fever.

III. By *diaphoretics*.—The antimonial sudorifics with opium are in general the most effectual in promoting perspiration and allaying the pain; but in mild cases the saline diaphoretics are sufficient, such as are recommended for the cure of inflammatory fever. To these opium is a useful addition when the pain is considerable; (see Synocha, p. 73, and Synochus, p. 95,) [or large doses of tartarized antimony in delicate habits, or after depletion, are very much praised by many modern writers. The old plan of sweating patients by Dover's powder is now generally abandoned. Calomel and opium are used, but ptyalism must not be produced. Blisters are considered injurious in acute rheumatism. Quinine or cinchona is not depended on alone, but is useful when there is much debility or periodical return of the pain.]

IV. By *narcotics*.—The opiates already prescribed. Conium, hyoscyamus, aconitum, digitalis, are sometimes employed with success, especially the first, with small doses of the submuriate of mercury, after having freely evacuated the bowels. Hyoscyamus in conjunction with camphor.

R. Extracti Conii gr. v; Hydrargyri Submuriatis gr. $\frac{1}{2}$: Fiat pilula quartâ quaque horâ sumenda.

R. Extracti Hyoscyami gr. v.: Fiat pilula quartâ quaque horâ capienda.

R. Extracti Aeoniti gr. j: Fiat pilula ter in die adhibenda.

V. By fomentations of bitter herbs with poppy-heads, or any narcotic herb, as conium, lactuca virosa, hyoscyamus, or belladonna, and camphorated liniments, which are more useful when a limb or joint is principally affected.

R. Camphoræ $\overline{3}$ ss; Olei Olivæ Optimi f $\overline{3}$ ij: Fiat embrocatio Camphorata.

As soon as any remission can be perceived; or where there has been much perspiration accompanied by a deposit or sediment in the urine; or where the exacerbations of the disease have been from its commencement strikingly periodical, Peruvian bark is serviceable, either alone or with ammonia or guaiacum. [Quinine is the best preparation.]

R. Decocti Cinchonæ f $\overline{3}$ iv; Extracti Ejusdem gr. v; Tincturæ Cinchonæ Compositæ f $\overline{3}$ j; Syrupi Aurantii f $\overline{3}$ j: Fiat haustus quartis horis, in apyrexia, sumendus.

R. Spiritus Ammoniac Compositi f $\overline{3}$ ss; Tincturæ Cinchonæ Compositi f $\overline{3}$ jss; Decocti Cinchonæ f $\overline{3}$ xiiij; Syrupi Rheados f $\overline{3}$ j: Fiat haustus quartâ quaque horâ capiendus.

R. Tincturæ Guaiaci Ammoniacæ f $\overline{3}$ j; Vitelli ovi quantum suf-

ficit; Syrupi Aurantii f5j; Decocti Cinchonæ f5xij: Fiat haustus quartis horis adhibendus.

[Colchicum and veratrum are also esteemed by many in the cure of acute rheumatism. The best preparations are the extract of the seeds and the tincture of the root of the former, and the tincture of the root of the latter. I have found from five to twenty minims of the liquor Colchici, which is an aqueous solution prepared in the same way as the liquor Opii Sedativus, the best preparation of this medicine. Sir C. Scudamore advises the same formula in preference to all others. This medicine may be employed towards the end of the acute form of rheumatism, and in chronic cases, with great advantage.

R. Misturæ Guaiaci ʒvj; Liqueoris Colchici m.xx—xxv; Antimonii Tartarizati gr. j; Liqueoris Opii Sedativi m.xxx—xl; Dosis ʒss ter quaterve in die: This mixture is very efficacious.]

The mineral alkali has also been found useful, under similar circumstances, in combination with the tonic barks or bitters. The dose is ten grains of the carbonate of soda every four or six hours, with two ounces of the decoction of cinchona or cascarilla; or the same quantity of an infusion of calumba, gentian, granatum, chamomile, &c.

Of the chronic.—A great variety of remedies are exhibited against this species of rheumatism.

1. *Stimulants*, as guaiacum, ammonia, terebinthina, sinapis, armoracia, arum, pyrethrum, [and colchicum. This remedy is often effectual, after depletion and antimony have failed, and is now preferred to every other.

R. Aquæ Menthæ Piperitæ; Vini Colchici m.xx; Liqueoris Opii Sedativi m.x; Magnesiæ Calcinatæ gr. x; Syrupi Aurantii ʒss: Fiat haustus ter de die sumendus.

The solution of morphine is preferable to the sedative liquor of opium.]

R. Olei terebinthinæ rectificati f5ss; Syrupi Aurantii f5ij; Ovi unius vitellum; Aquæ destillatæ f5ij: Miscæ pro haustu ter in die sumendo.

[This is very effectual in Sciatica.]

The best way of exhibiting the sinapis or mustard, and armoracia or horse-radish, is as they come to the table; they may be taken very freely.

The dried root of the arum maculatum and of the anthemis pyrethrum are generally given in powder, thus:

R. Pulveris Radicis Ari gr. x: Fiat pulvis ter in die sumendus, ex parvo cyatho vini albi Hispanici.

R. Pulveris Radicis Pyrethri ʒj: Fiat pulvis ter in die, ex vino albo Hispanico, sumendus.

The oil prepared from the liver of the cod-fish has been extolled by Drs. Percival and Bardsley of Manchester. The dose is from one to three table-spoonsful daily. It is extremely nauseous and

disagreeable, and sometimes fails to afford relief. Train oil is seldom used at present. There may be a metastasis of the disease to the pericardium or any part of the body, when depletion becomes indispensable, and counter-irritation over the joint in which the disease ceased. When there is enlargement of the joints, the internal and external use of hydriodate of potass is highly beneficial.

R. *Misturæ Guaiaci* ʒvj; *Potassæ Hydriodatis* ʒj—iss, ij; *Liquoris Colchici m.xx*; *Liq. Opii Sed.* ʒss.: *Dosis* ʒss tertiâ vel quartâ horâ.

The enlarged or rigid joints or muscles should be rubbed with the following liniment.

R. *Lin. Camph. Comp.* ʒiv; *Tinc. Opii* ʒiv; *Potassæ Hydriodatis* ʒij—iij.]

2. *Alteratives*; especially sulphur, mercury, sarsaparilla, mezercon, dulcamara, and the narcotics.

The simple or compound decoction of sarsaparilla may be taken in the quantity of half a pint daily, or the decoction of dulcamara.

R. *Stipitum dulcamaræ contusarum* ʒj; *Radiciis glycyrrhizæ contusæ* ʒj; *Aquæ destillatæ* Ojss; *Coque per quadrantem horæ, dein cola.* Bibat æger libram dimidiam quotidie, partitis haustibus.

When sarsaparilla is given alone, a vegetable and milk diet assists, provided the constitutional powers will bear the abstraction of animal food. Sarsaparilla should be given in large doses: as an ounce of the powder in the twenty-four hours, or a pint of the decoction; and when these are objected to, one of the following:

R. *Extracti Sarsaparillæ* ʒj; *Decocti Sarsaparillæ* f ʒxiv: *Fiat haustus ter in die sumendus.*

R. *Extracti Sarsaparillæ* ʒj; *Decocti ejusdem Compositi* f ʒxiv: *Fiat haustus ter in die capiendus.*

[The fluid extract of sarsaparilla is now generally employed. Dr. O'Beirne considers the following formula the best, and I agree with him in opinion.

R. *Rad. Sarsaparillæ Jamecen. concisæ* ʒiv; *Glycyrrhizæ* ʒss; *Liquoris Calcis* Oij; *Macera per horas viginti quatuor in vase vitro optime operculato, et in loco frigido et obscuro; dein cola in usum.* Sumat æger hujusce infusi dimidium, partitis vicibus quotidie. (For a full account of this preparation see *A New Practical Formulary of Hospitals, &c.* 1836.)

The extract is quite inert, and the decoction should be prepared by pouring on hot water, and keeping it the necessary time below the boiling point.—*Hancock, Trans. Medico-Botanical Society*, vol. i. 1829. Quinine and the arsenical solution are beneficial when the disease evinces periodicity.]—See p. 111.

3. *External applications*.—The simple warm bath, or tepid sea-water bath. A tepid bath with marine acid, in the proportion of one ounce to each gallon of water. Vapour baths.

Friction, alone or with salt brine, so as not to excoriate.

Stimulating liniments.

R. Olei Terebinthinæ ; Olei Olivæ āā f ʒj ; Liquoris Ammoniac Carbonatis f ʒss ; Tincturæ Opii f ʒijj : Fiat linimentum quod sæpe utatur.

R. Linimenti Camphoræ Compositi f ʒjss ; Tincturæ Opii f ʒijj : Fiat embrocatio, bis quotidie applicanda.

[R. Olei Olivæ ʒijj ; Morphiac Acetatis gr. iv : Fiat embrocatio. This is the best anodyne embrocation.]

R. Linimenti Saponis Compositi f ʒjss ; Liquoris Ammoniac Carbonatis f ʒijj : Misce pro embrocatione.

R. Antimonii Tartarizati ʒj ; Cerati ʒj. Misce : cujus illinatur aeger q. n. m. bis quotidie in partem affectam.

Or,

R. Antimonii Tartarizati ʒj ; Linimenti Saponis Compositi f ʒxv : Fiat embrocatio bis in die utenda.

This tartar emetic ointment and embrocation have the property of producing a crop of pustules wherever they are rubbed, and when this effect is produced, they must of course be discontinued.

Blisters are likewise very serviceable against local pains.

Warm opiate plasters also :

Imponatur emplastrum picis compositum parti dolenti.

The emplastrum opii spread on leather and applied to the part ; or,

R. Emplastri Picis Compositi ʒj ; Pulveris Opii ʒss : Fiat emplastrum parti affectæ admovendum.

[The extract of belladonna is also used as a plaster in the quantity of ʒi—ij. Lugol praises iodine, and I can attest its value when the tendinous sheaths are thickened.

R. Iodinii Pulveris ʒj ; Potassæ Hydriodatis ʒij ; Morphiac Acetatis gr. vj—x ; Adipis ʒi : Fiat unguentum cujus pauxillo fricetur pars affecta mane nocteque.]

R. Olei Macis ʒij ; Pulveris Opii ʒss : Misce, cujus illinatur pauxillum subinde in partes dolentes.

[The vapour bath or sudatory.]

Electricity, galvanism, and fomentations.

Acupuncture, or piercing the skin with one or several needles tied together. [Issues and moxas are sometimes employed.]

Shampooing, which is lightly pinching or lifting up the skin over the affected part with the finger and thumb, an Indian luxury.

Warm clothing and a stimulating diet.

Covering the part with oilskin. [Covering the skin with flannel, cotton, or glazed silk, impregnated with some resinous substance. Percussing the part with a dumb bell.

These are the principal remedies that are used in the present day : it would be an endless task to enumerate all that have been selected. Many were formerly employed that are now fallen into disuse, and others are frequently starting up which have their run, and are then laid aside. I have known respectable persons who

kept a small bottle of quicksilver, and others a piece of cane-brimstone in their pockets, as a cure for this disease. It is unnecessary to state, that these remedies are as useless as ridiculous.

In all cases where there are any suspicions of the disease being connected with a syphilitic taint, the mercurial alteratives should be continued a long time, or mercury should be so administered as to affect the gums.

Whatever remedies are used, it will be absolutely necessary to persevere with them for a considerable length of time, in order to obtain from them the desired advantage.

The patient should wear flannel next the skin for some months after recovery.

Rubbing the affected limbs twice a-day is often of signal service; but bandaging or percussion is seldom used at present.]

PODAGRA.—THE GOUT.

SPECIES.—1. *Podagra regularis*: with a violent inflammation of the joints, enduring for several days, and receding gradually, with swelling, itching, and desquamation of the part affected.

2. *Podagra atonica*: debility of stomach, or other internal part, and either without the expected or usual inflammation of the joints, or with slight and fugacious pain in them, with dyspepsia or other symptoms of debility often quickly alternating.

3. *Podagra retrograda*: with inflammation of the joints suddenly disappearing, followed immediately by debility of the stomach, or of some other internal part.

4 *Podagra aberrans*: with inflammation of some internal part, preceded or not preceded by inflammation of the joints, which quickly disappears.

SYMPTOMS.—*Of the regular gout*.—Dyspepsia, with its usual attendants, lassitude, torpor, and dejection of spirits; unusual coldness and numbness of the extremities, alternating with sense of pricking, or formication, frequent cramps; unusual turgescence of the veins of the leg. The paroxysm most frequently comes on about two o'clock in the morning, with excruciating pain, in the articulations of the great toe; succeeded by rigor, horror, and pyrexia. The pain continues to increase in violence, and having attained its æcme towards the following evening, gradually ceases; a general moisture breaks out upon the skin, and the patient, freed from his torment, falls into a sound sleep; upon awakening from which he finds the parts, before painful, now swollen and inflamed. In several succeeding evenings, there is a return of pain and fever, which continue, with more or less violence, during the night, and go off at break of day.

Of the atonic gout.—When the gouty diathesis prevails in the system, but, from certain causes, does not produce the usual inflammatory affection of the joints, it often appears in the form of

an atonic affection of some internal part. If it be in the *stomach*, there are pain, nausea, vomiting, eructations, dejection of mind, and other symptoms of dyspepsia and hypochondriasis: these are frequently accompanied with cramps in several parts of the trunk and upper extremities; sometimes there is obstinate costiveness, sometimes diarrhœa. If in the *viscera of the thorax*, it produces palpitation, syncope, asthma. When the *head* is affected, there is cephalagia, vertigo; and apoplectic and paralytic affections are sometimes the consequence.

The *retrocedent gout* is where an inflammation of the joints has in the usual manner, come on, but without arising to the ordinary degree; or, without continuing for the customary time, it suddenly and entirely ceases, while the disease is transferred to some internal part.—*To the stomach*; when great anxiety, sickness, violent pain, and vomiting, with peculiar sense of cold in the epigastric region, are induced.—*To the heart*; occasioning syncope.—*To the lungs*; asthma.—*To the head*: apoplexy, or palsy.

The *misplaced gout* is when the gouty diathesis, instead of producing the inflammatory affection of the joints, produces an *inflammation* of some internal part; and which appears with the same symptoms that attend the inflammation of those parts, arising from other causes.

CAUSES.—*Predisposing and remote*.—The adult age, more especially the middle period of life; hereditary predisposition; melancholic-sanguine temperament; full plethoric habit of body; indulgence in the use of animal food, fermented liquors, and venery; sedentary and studious life; the large use of acids and acescents; tartareous wines; dyspepsia.

[Sir C. Sendamore has proved, that in a number of patients the majority had no hereditary predisposition. It is also a well-known fact, that gout affects the poor as well as the rich. It seldom occurs before the age of twenty, or after sixty.]

Exciting.—The application of cold to the extremities; fatigue; anxiety of mind; excessive evacuations; sprains; intemperance of whatever kind; the ceasing of usual labour; the sudden change from a very full to a very spare diet.

DIAGNOSIS.—*From rheumatism*.—By the previous dyspeptic symptoms; by the pains, in the one disease attacking the smaller, in the other the larger joints. By the peculiar mode of its attack (see Symptoms); by its not being preceded, or accompanied at its commencement, with symptoms of synocha; by the age of the patient.

PROGNOSIS.—*Favourable*.—Youth, and an unimpaired constitution; the more severe the paroxysm, the shorter its duration; the longer the intermission, the more effectual is it in removing various anomalous diseases, to which the patient had been before subject; its not being hereditary.

Unfavourable.—Impaired constitution; concomitant visceral

affections; hereditary predisposition to the disease; the deposition of chalky matter on the joints; the disease suddenly receding from the extremities, and attacking an important internal organ, as the stomach, heart, brain, lungs, &c.

TREATMENT.—The *indications* in the regular gout are,

I. To alleviate pain, and shorten the duration of the paroxysms.

II. To prevent their return.

The first indication is best fulfilled by diaphoretics and opiates.

R. Ammoniae Subcarbonatis gr. xij; Succī Limonis recentis q. s.; Misturæ Camphoræ fʒx; Syrupi Aurantii fʒj; Tincturæ Opii m.x—xxx: Fiat haustus quarta vel sexta quaque horâ sumendus.

R. Pulveris Antimonialis gr. iij; Ammoniae Subcarbonatis gr. iv; Pulveris Ipecacuanhæ Compositi gr. v—xv; Confectionis Rosæ q. s: Misce; ut fiat bolus quartis horis sumendus.

R. Extracti Opii gr. ij; Hydrargyri Submuriatis gr. j; Pulveris Antimonialis gr. iij; Confectionis Rosæ q. s.: Fiat pilula hora decubitûs sumenda, superbibendo haustum salinum.

In a regular fit of the gout the assistance of medicines is not so great as is generally supposed; all that is required is to keep the inflamed part moderately warm with flannel, wool, or fleecy hosiery; to confine the patient, if young, to a spare regimen; if advanced in life, or a high liver, to enforce a more moderate one; carefully abstaining from everything that might add to the irritation, keeping the limb as quiet and still as possible, and taking care that his mind be not ruffled, but, on the contrary, soothed and calmed.

Some practitioners have been induced to adopt an antiphlogistic mode of treatment, which, in a few instances, has soon removed a regular fit of the gout; in others, it has induced an alarming and serious train of symptoms [by inducing metastasis to the brain, heart, &c.]

Many topical remedies have been recommended; pediluvium of simple water; a tepid bath of water and muriatic acid, in the proportion of one ounce to a gallon of water; leeches; very cold water; ice; blisters; stinging with nettles; burning with moxa; covering the part with oilskin, and the like; but, perhaps, the less the part is interfered with the better, for the consequence of their use is often the translation of the inflammation to an internal organ. Exciting a perspiration on the part by fleecy hosiery or flannel is sometimes attended with the most beneficial effects. [A narcotic cataplasm or anodyne fomentation affords great relief.]

Dr. Kinglake has revived the practice of applying cold water and refrigerants to the inflamed part, which in many cases has had the desired effect; but instances are not wanting in which it was supposed to have been productive of a fatal retrocession. [Scudamore and Mackintosh strongly advise camphorated spirit very much diluted with water, others use a tepid evaporating lotion.]

The Eau Medicinale d'Husson, and Wilson's Tincture for the Gout are dangerous medicines, the chief ingredient being colchicum or veratrine.

One mode of administering these medicines is in small doses, in which way they have no sensible operation, except that of gradually reducing the force of the symptoms. With this view the bowels are to be first cleared with proper aperients, and then one of the following recipes resorted to :

R. Liquoris Ammoniae Acetatis $\text{f}\overline{\text{ss}}$ ij; Misturæ Camphoræ $\text{f}\overline{\text{ss}}$ ix; Potassæ Nitratis gr. viij; Tincturæ Colchici $\text{f}\overline{\text{ss}}$; Syrupi Croci $\text{f}\overline{\text{ss}}$ j: Fiat haustus sexta quaque hora sumendus.

Others give a larger dose with some aperient, which mostly acts gently on the bowels, and much relieves the complaint: thus,

R. Tincturæ Colchici $\text{f}\overline{\text{ss}}$ j; Misturæ Camphoræ $\text{f}\overline{\text{ss}}$ vj; Infusi Sennæ $\text{f}\overline{\text{ss}}$ ij; Syrupi Aurantii $\text{f}\overline{\text{ss}}$ j: Fiat haustus nocte maneque capiendus.

[See Rheumatism for a formula now generally employed, p. 372. The bowels should be opened, before we commence this medicine, and it must be used with caution when there is a determination of blood to the head. The volatile tincture of colchicum seeds is recommended in the strongest terms by Dr. Williams of Ipswich.]

The second indication is effected by regularity of life; avoiding the exciting causes of the disease; abstinence from the use of animal food and fermented liquors; milk and vegetable diet; exercise; friction with the flesh-brush; tonics and stomachic bitters and chalybeates, such as are recommended for the cure of dyspepsia; Bath waters; the regular use of mild cathartics.

The long-continued use of the mineral alkali.

R. Sodæ Carbonatis Exsiccatæ gr. x; Saponis duri gr. iv; Pulveris Rhei q. s.: Fiant pilule due nocte maneque sumendæ.

The double acidulated soda-water in the quantity of a pint daily; lime-water; ginger.—See Gravel, p. 360, and Chronic Nephritis, p. 354.

The atonic gout is to be treated by carefully avoiding all the causes inducing debility; gentle exercise; cold bathing; the moderate use of animal food, and the least acescent wines, as Sherry and Madeira; tonics, stomachics, and chalybeates, such as are recommended against indigestion; guarding against the effects of cold, by wearing flannel next the skin; in severe attacks, blisters to the extremities are serviceable.

Of the retrocedent gout.—If the stomach be the seat of the disease, the liberal administration of warm brandy and water, or wine and aromatics; ether, ammonia, assafetida, camphor, musk, [and sinapisms to the feet.]

R. Spiritus Ætheris Sulphurici Compositi $\text{f}\overline{\text{ss}}$ ij; Misturæ Camphoræ Fortioris $\text{f}\overline{\text{ss}}$ vijss; Syrupi Aurantii $\text{f}\overline{\text{ss}}$; Misce; sit dosis cochlearia tria omni hora.

R. Spiritus Ammoniae Succinati f ʒij ; Misturæ Camphoræ f ʒvj ; Syrupi Rheados f ʒss : Misce : sumantur cochlearia tria magna omni hora.

R. Misturæ Assafœtidæ f ʒiij ; Misturæ Camphoræ f ʒiv ; Ammoniae Carbonatis ʒj ; Syrupi Zingiberis f ʒss : Misce : capiat æger cochlearia tria omni hora.

R. Camphoræ pulveris ; Pilulæ saponis cum Opio ; Moschi Opii ; Assafœtidæ, singulorum gr. iij ; Syrupi Zingiberis q. s. : Fiat bolus omni bîhorio adhibendus.

Warm stimulating plasters are to be applied externally.

R. Emplastri Picis Compositi ʒj ; Olei Essentialis Sassafras ʒj : Fiat emplastrum regioni epigastriæ imponendum.

ORDER IV.

HÆMORRHAGIÆ.

DISCHARGES OF BLOOD.

CHARACTER.

Pyrexia, with a profusion of blood, without any external violence; the blood drawn from a vein having the same appearance as in the phlegmasiæ.

The pyrexia is often exquisitely synochal; the heat considerable, and the pulse almost peculiar and well marked. It is usually the *pulsus dicrotus*, or rebounding pulse; so called, because its action conveys the idea of a double pulsation. In the diseases of this order there is generally an obvious plethora of the vascular system, known by the peculiar pulse just mentioned, by the morbid determination of blood to the part from which the blood proceeds, and by a febrile irritation, which strongly point out an *hæmorrhagic diathesis*.

GENERA.

EPISTAXIS,	or	Bleeding from the nose.
HÆMOPTYSIS,	—	Spitting of blood.
HÆMATEMESIS,	—	Vomiting of blood.
HÆMORRHOIS,	—	Piles.
MENORRHAGIA,	—	Flooding.
HÆMATURIA,	—	Voiding of blood by urine.

GENERAL CAUSES.

External heat; sudden diminution of the weight of the atmosphere; whatever increases the force of circulation; as, violent exertions of the body in general, or violent action in a particular part; particular postures of the body; ligatures producing local congestion; exposure to cold; external violence.

GENERAL TREATMENT.

Indications.—I. To put a stop to the discharge of blood.

II. To prevent its recurrence, by removing the causes by which it was excited.

III. To destroy the inflammatory diathesis.

[Acetate of lead, with the liquor opii sedativus, or the acetate of morphia, is the only effectual astringent in hæmorrhages; and will generally prove effectual, unless large vessels are ruptured. It may be given to the amount of ten grains daily, provided a small quantity of diluted acetic acid is added.

EPISTAXIS.—HÆMORRHAGE FROM THE NOSE.

SPECIES.—1. *Epistaxis juniorum*; with signs of arterial plethora.

2. *Epistaxis senum*; with signs of venous plethora.

SYMPTOMS.—Sense of weight, and obtuse pain in the head; redness of the cheeks; inflation of the face, and of the vessels of the neck and temples; tinnitus aurium; heavy pain, prominence and dryness of the eyes; vertigo; itching of the nostrils, and sense of weight about the root of the nose; in some instances disturbed sleep and dreadful dreams; costiveness; diminished secretion of urine; coldness of the extremities; tension of the right hypochondrium; these succeeded by a profusion of blood from the nostrils.

CAUSES.—*Predisposing*.—A certain age; the period of puberty, and the decline of life; plethoric state of the system; peculiar weakness of the vessels of the part.

Exciting.—External heat; violent exertion; cold applied to the body; particular postures of the body; external violence.

TREATMENT.—The *indications* mentioned in the general treatment of Hæmorrhage will be answered:—

I. By the local means recommended in surgical works; erect position of the body, with the head somewhat reclined backwards; free exposure to cool air; cold applied to the neck, or immersion of the head in cold water; or by covering the head with a bladder half filled with water impregnated with nitrate of potass and muriate of ammonia; affusion of cold water over the genitals; and astringent injections; but the most effectual and certain is plugging up the posterior and anterior nostrils with dossils of lint; a coagulum of blood will form between them, and the hæmorrhage will cease, [unless an artery has burst, when it may prove fatal.]

R. Zinci Sulphatis ʒj; Aquæ Destillatæ fʒx: Fiat injectio subinde utenda.

R. Tincturæ Muriatis Ferri fʒj; Aquæ Destillatæ fʒvj: Fiat injectio.

R. Aluminis Purificati ʒj; Acidi Acetici fʒj; Aquæ Destillatæ fʒvj: Fiat injectio.

The second and third indications will be fulfilled by,

1. The means that obviate plethora, as the antiphlogistic diet, general and local blood-letting, purging, and diaphoretics. These remedies are more particularly required when the fever is considerable and the pulse strong.

2. *Refrigerants* and *diaphoretics*; as, nitrate of potass and antimonium tartarizatum.

R. Potassæ Nitratis gr. vj; Liquoris Antimonii Tartarizati m. xv; Aquæ Destillatæ fʒxij; Syrupi Croci fʒj: Fiat haustus sextis horis sumendus.

3. *Astringents* ; especially sulphate of zinc, alum, and acetate of lead with opium, [the last is the best.]

R. Zinci Sulphatis gr. $\frac{1}{4}$; Aluminis Purificati gr. x ; Infusi Rosæ f5xiiij ; Syrupi ejusdem f5j : Fiat haustus sextis horis capiendus.

R. Plumbi Acetatis gr. j—ij ; Liquoris Opii Sedativi m.x ; Aquæ Cinnamomi f5v ; Aquæ Destillatæ f5x ; [Acidi Acetici Diluti 5ss ;] Syrupi Aurantii f5j : Fiat haustus octavis horis sumendus.

4. *Sedatives* ; especially digitalis and nitrate of potass.

R. Tincturæ Digitalis m.x-xxx ; Potassæ Nitratis gr. vj ; Aquæ Menthæ Viridis f5xiiij ; Syrupi Croci f5j : Misce, pro haustu sexta quaque hora sumendo.

HÆMOPTYSIS.—SPITTING OF BLOOD.

SPECIES.—1. *Hæmoptysis plethorica* ; occurring without any external cause, without previous cough, or suppression of any usual evacuation.

2. *Hæmoptysis violenta* ; occurring on the application of external violence.

3. *Hæmoptysis phthisica* ; occurring after long-continued cough, with wasting and debility.

4. *Hæmoptysis calculeosa* ; bringing up small calcareous pustules mixed with the sanguineous sputum.

5. *Hæmoptysis vicaria* ; occurring after the suppression of some accustomed evacuation.

SYMPTOMS.—Sense of weight and oppression in the chest ; dry tickling cough ; peculiarly hard jerking pulse ; difficulty of breathing ; sense of pain and heat, referred to the sternum ; saltish taste in the mouth ; flushed countenance ; constant irritation at the top of the larynx, which excites hawking and coughing, during which the profusion of blood takes place. [The chest affords the natural sound on percussion, and the mucous râle is very distinct. The disease may be periodical, or supervene on the suppression of an habitual sanguineous discharge, as menstruation, or the hæmorrhoidal flux. The disease is caused by an exhalation on the mucous membrane in most cases, as there is no erosion or breach of surface found on dissection. It may, however, be caused by the rupture of a blood-vessel, when the hæmorrhage will be more copious. It often precedes consumption, but it may continue for several years and occur daily, though the patient is otherwise in excellent health. The editor has a patient, at this time, who has had it daily for the last twenty years. He is in good health and very corpulent. In general it is a symptom of consumption.] It may continue for twenty years, when florid and produced by the bronchial mucous membrane ; but when the extreme branches of the pulmonary artery give way, and dark-coloured blood is expectorated, there is great danger, or when it proceeds from the air cells,

or intervesicular cellular tissue of the lungs. It may be vicarious of suppressed sanguineous discharges from any portion of the mucous membrane, and in such cases is seldom preceded or succeeded by cough. But in pulmonary apoplexy there is cough and dyspnoea. Phthisical hæmoptysis is arterial and bronchial; hence so many bronchial râles in consumption. In general there is bronchitis at the top of both lungs.]

CAUSES.—*Predisposing.*—A certain age; from the period of puberty to the thirty-fifth year; sanguineous temperament; great sensibility and irritability; suppression of usual evacuations; narrow conformation of the chest; previous affections of the same disease; hereditary predisposition; plethora; diseases of the heart, especially an impediment to the return of the blood to the left auricle, engorgement of the liver, and purpura.

Exciting.—Excessive heat of the atmosphere; violent exercise; inordinate exertion of the organs of respiration; external violence; [depressing passions; venery.]

DIAGNOSIS.—The blood being brought up by hawking and coughing; of a florid red colour; and mixed with a little frothy mucus; reference to the predisposing causes.

From hæmatemesis.—The blood thrown up in hæmatemesis is usually in much more considerable quantity; of a darker colour; more grumous; mixed with other contents of the stomach; and usually unattended with cough.

PROGNOSIS.—*Favourable.*—The disease arising from common causes only, and not from hereditary predisposition to phthisis, or malconformation of the pulmonary system. The blood being small in quantity, and of a bright red colour. Its not being followed by cough, dyspnoea, pain, or other affection of the lungs. [The attack being periodical, and the patient being otherwise in good health.]

Unfavourable.—The reverse of the above.

TREATMENT.—*Indications.*—The same as enumerated for the general treatment of Hæmorrhagy, which will be answered by,

1. Avoiding heat, every kind of bodily exertion, [and conversation.]

2. Making use of a light *vegetable diet*.

3. *Bleeding*, where symptoms of inflammatory diathesis are indicated by the hardness and peculiar jerk of the pulse; the constitution of the patient; and the florid colour of the blood evacuated from the lungs, and when the quantity is copious.

On the contrary, where there are marks of debility and laxity, and the blood is of a dark colour, depletion is improper, [or in nervous, sensitive persons.

Lecches to the anus when hæmorrhoids have existed, and to the hypogastrium, or genital fissure, when the catamenia are suppressed.

When the hæmorrhage is copious, it arises from pulmonary apo-

plexy, or congestion, or from a ruptured vessel, and then copious depletion is necessary.

When the disease is intermittent, or attacks nervous persons, or those of a scorbutic habit, quinine is a most useful remedy.]

4. *Cooling purges*, of the sulphate of magnesia or soda, in infusion of roses.

R. Infusi Rosæ fʒvij; Magnesiae Sulphatis ʒvj; Syrupi Rosæ fʒss: Fiat mistura cujus capiat æger cochlearia iv, sextâ quaque horâ.

5. *Refrigerants*; nitrate of potass; sulphuric acid; citric acid, tamarinds, &c.

R. Infusi Rosæ fʒij; Potassæ Nitratis ʒss; Tincturæ Opii ℥v: Fiat haustus tertiâ vel quartâ quaque horâ sumendus.

[The French use half ounce doses of nitre given in mucilage.]

R. Acidi Sulphurici Diluti m.xv; Aquæ Destillatæ fʒxv; Tinctura Opii m.v—xv; Syrupi Rosæ fʒij: Fiat haustus tertiâ vel quartâ quaque horâ capiendus.

R. Potassæ Supertartratis ʒij; Potassæ Nitratis ʒij; Misce: capiat æger ʒss, pro dosi ex cyatho parvo aquæ hordei.

Draughts of cold water acidulated with lemon-juice.

6. *Astringents*; the vegetable acids: acetate of lead; tinctura styptica; but especially the acetate of lead in combination with opium, which proves the most certain styptic when the febrile state is removed by venesection, and it agrees with the bowels.

R. Plumbi Acetatis gr. vj; Extracti Opii gr. iij; Confectionis Rosæ Caninæ q. s.: Fiat massa in pilulas sex æquales dividenda. Sit dosis una vel altera bis, ter, quaterve in dies.

R. Plumbi Acetatis, Pulveris Digitalis, āā gr. j.; Extracti Opii gr. ¼; Extracti Glycyrrhizæ gr. iij: Fiat pilula ter in die sumenda, superbibendo cyathum vinosum alicujus liquoris idonei. Or,

The acetate of lead draught, directed p. 100 is better.

R. Tincturæ Saturninæ m.x—xl; Aquæ Destillatæ fʒxij; Syrupi Simplicis fʒj: Fiat haustus ter in die sumendus.

[The lead may be increased to ten or fifteen grains daily.]

7. *Sedatives*; digitalis; hyoscyamus; conium.

R. Plumbi Acetatis gr. j; Extracti Hyoscyami gr. v; Pulveris Ipecacuanhæ Compositi gr. ij: Fiat pilula octavâ quaque horâ deglutienda.

R. Extracti Hyoscyami gr. ij—xv; Extracti Conii gr. iij: Fiat pilula sextis horis sumenda.

R. Extracti Hyoscyami gr. ij—x; Pulveris Digitalis gr. j: Fiat pilula sextâ quaque horâ sumenda.

R. Tincturæ Digitalis m.x—xxx; Acidi Sulphurici Diluti m.xv; Aquæ Menthæ Viridis fʒxij; Syrupi Rhaados fʒj: Fiat haustus sextis horis sumendus.

8. *Emetics* are recommended by Dr. Darwin [and others.]

Richter in his Elements of Surgery recommends ipecacuanha for its anti-hæmorrhagic effect, and Sheridan and Graves speak of it in high terms. The latter gives with opium towards the termi-

nation of the disease and prefers it to the acetate of lead. Dose, two grs. every quarter of an hour, or every half-hour, until the bleeding is arrested.—*Lond. Med. and Surg. Journ.* v. ii. p. 217.

The ergota or secale cornutum, in doses of three grains every three hours is a valuable astringent.]

9. Nauseating medicines; antimonium tartarizatum in small and repeated doses.

10. Inhaling sedative airs; hydrocarbonate.

11. Limited use of liquids.

12. Cold lotions applied; [to the chest:] vinegar and water; a solution of muriate of ammonia.

Where symptoms of debility prevail. blisters to the chest; [quinine;] opium; chalybeates.

HÆMATEMESIS.—VOMITING OF BLOOD.

An hæmorrhage of dark-coloured, grumous blood from the stomach, in a greater or less quantity, mixed with alimentary matter, and preceded by a sense of weight and obtuse pain or anxiety in the region of the stomach.

CAUSES.—The general causes of hæmorrhage, as plethora, suppression of evacuations, &c.; tumours compressing the liver or spleen; external violence; obstructions in any neighbouring viscus; rupture of a blood-vessel, as in the case of King George IV.; or there may be no erosion or abrasion of the gastric mucous membrane, in which case the hæmorrhage will be sparing. The fluid is exhaled from the mucous membrane, and this is congested, red or livid in patches, which retain their colour, though submitted to frequent ablution.]

PROGNOSIS.—Hæmatemesis seldom proves fatal from the loss of blood, but it often induces very considerable weakness. When the bleeding is symptomatic of some other disease, then the prognosis should depend on the probability of its being cured.

TREATMENT.—*Indications.*—See the general treatment of Hæmorrhagy.

If accompanied by symptoms indicating an inflammatory diathesis, bleeding, and the antiphlogistic regimen, with digitalis.—If not, tonics and astringents; sulphuric acid with opium.

Ice water, or lemon, or any water ice, a small quantity at a time, [and pounded ice to the epigastrium.]

When the hæmorrhage has ceased, infusion of roses with excess of sulphuric acid should be given regularly every four or six hours, and the bowels should be kept open by proper doses of the sulphate of magnesia, or soda, or the soda tartarizata in the almond mixture. [When the disease is caused by suppression of the hæmorrhoidal or catamenial flux, leeches should be applied to the anus or vagina, together with other appropriate remedies for such diseases.]

The tinctura ferri muriatis *m. xx*, ad *xxx*, omni horâ, in a small wine-glassful of water.

The union of decoctum einchonæ with acidum sulphuricum. [Quinine draughts, see p. 32.]

Alum, in the dose of ten grains every four hours.

Epispastics to the abdomen, if there be pain, [and sinapisms to the legs.]

If the existence of scirrhus tumours can be ascertained, hydragryum; conium; [iodine;] and other remedies recommended for such diseases. [When vomiting blood is caused by rupture of a large vessel or tumour, all medicines will fail to restrain it. When the disease occurs in delicate or scorbutic habits, tonics, quinine, and rhatany are the best remedies.]

HÆMORRHOIS.—THE PILES.

SPECIES.—1. *Hæmorrhôis tumens*: from external tumours.

2. *Hæmorrhôis procidens*: from protrusion of the anus.

3. *Hæmorrhôis fluens*: bleeding piles, internal, without external tumour or protrusion of the anus.

4. *Hæmorrhôis cæca*: blind piles, with pain and tumour of the anus, without effusion of blood.

CHARACTER.—Small tumours on the verge of the anus, or a number of varicose veins surrounding it: [itching, weight, tension, and a sense of bearing down,] or pungent pains in the fundament [or perineum]; more especially upon going to stool; pain in the back or loins; vertigo; head-ache; discharge of blood from within the anus; [frequent desire to go to stool; varicose or enlarged veins; hard tumours, sometimes indolent or painful; excoriation or erythema about the anus.]

CAUSES.—Habitual costiveness; plethoric state of the vessels; hard riding; excesses of various kinds; the suppression of some long-accustomed evacuation; the use of strong aloetic purgatives; pressure of the abdominal viscera on the hæmorrhoidal veins, [by pregnancy or curvature of the spine.]

Anatomical Characters.—The veins may be enlarged, the cellular tissue thickened, or the morbid growth may resemble parenchymatous or erectile tissue.]

PROGNOSIS.—The only unpleasant consequence in general to be apprehended from piles, is the presence of inflammation, which may induce suppuration, and the disease degenerate into fistula. When a venous plethora exists, which is often the case in old age, bleeding piles are salutary, and their suppression followed by apoplexy. [Piles often relieve affections of the head, chest, abdomen, and uterus, and when suppressed cause disease in these parts.

Dr. Graves observed pulmonary apoplexy succeed suppressed piles. —*London Med. and Surg. Journ.* vol. ii. p. 715.

TREATMENT.—*Indications*.—See the general treatment of Hæ-

morrhage. When the hæmorrhage is considerable, so as to occasion great debility, recourse must be had to astringents, both locally and internally.

The best way to stop the hæmorrhage when extremely profuse, is by pressure. Various means have been recommended, as introducing a pig's or sheep's gut, and filling it with water; but these are nasty and unnecessary: the pressure should be made by dosils of lint or the finger. The following are the best local astringents:

R. Sulphatis Zinci $\overline{3j}$; Aquæ Destillatæ $f\overline{3x}$: Fiat injectio frigide injicienda.

R. Sulphatis Zinci; Aluminis Purificati, $\overline{aa}\overline{3ss}$; Aquæ Destillatæ \overline{Oj} : Fiat injectio.

R. Aluminis Purificati $\overline{3j}$; Decocti Quercûs \overline{Oj} : Fiat injectio.

R. Liquoris Plumbi Acetatis $\overline{3j}$; Misturæ Camphoræ $\overline{3j}$; Aquæ Destillatæ \overline{Oss} : [Fiat solutio in rectum opê sephunculi injicienda.]

Ice applied by introducing a small piece into the rectum.

If these are insufficient, astringents should be directed internally. [The best are the acetate of lead and opium.]

R. Aluminis gr. v.; Acidi Sulphurici Diluti $m. xxx$; Infusi Anthemidis $f\overline{3xij}$; Syrupi Amrantii $f\overline{3j}$; Tincturæ Opii $m. vj$: Fiat haustus ter in die sumendus.

R. Aluminis Purificati $\overline{3ss}$; Kino gr. viij; Confectionis Opii $\overline{3ss}$: Fiat bolus sextis horis sumendus.

[If the pile is an enlarged vein, and this becomes strangulated by the spasm of the sphincter ani, it should be compressed and flattened with the finger and passed into the rectum. This plan may be repeated frequently. A T bandage may become necessary. The hip-bath facilitates the reduction of strangulated piles.]

When the tumours about the anus are painful, and when inflammation attends, leeches should be applied, and cooling lotions or solutions of lead [or cold poultices].

The inflammation often runs high, and produces a considerable degree of fever. The antiphlogistic diet is then necessary, and the means recommended against synocha fever.

In all cases of hæmorrhoids the bowels should be kept loose, as the irritation of hardened feces both before and during their passing over the piles, creates much distress. Oleaginous purges are most serviceable, though sulphur is the most generally resorted to.

[R. Sulphuris Loti, Potassæ Supertartratis, $\overline{aa}\overline{3j}$; Pulveris Jalapæ $\overline{3j}$; Pulveris Cinnamomi Compositi $\overline{3j}$; Mellis vel Theriacæ q. s.: Fiat electuarium ejus capiat cochleare medium bis vel ter in die.]

When, instead of being inflamed, the tumours are relaxed and flaccid, and at the same time irritable, astringent applications should be used, as galls, oak-bark, balsam of copaiba, and cold; and astringents taken internally are likewise beneficial.

R. Gallæ Pulveris ʒj; Camphoræ ʒss; Tincturæ Opii fʒij; Cerati ʒj: Tere simul ut fiant unguentum quo partes affectæ nocte manequæ illinantur.

R. Gallæ Contusæ ʒss; Aquæ Destillatæ Oij: Coque per sextam horæ partem, dein cola pro fomento bis in die applicando.

[The introduction of a piece of tallow candle, and this allowed to melt in the rectum, affords great relief. A suppository of simple cerate and opium is also a good remedy.]

When, in consequence of a long continuance of the disease, the rectum has become much affected and weakened, and excrescence or fistulas are threatened, Dr. Ward's paste has been of great service. [Tonics and chalybeates are necessary in debilitated constitutions.]

CONFECTIO PIPERIS NIGRI.

R. Radicis Enulæ Campanæ; Piperis Nigri, singulorum flss; Seminis Fœniculi Dulcis; Mellis Despumati, aa lbj: Fiat pasta, de qua capiat quantitatem nucis moschatae bis terve die.

[If the tumours close the anus, we must introduce a common candle, an oiled bougie, tents, or a piece of sponge well oiled. Patients affected with piles should sleep on a hair mattress, sit as little as possible, and if sedentary or literary, pursue their avocations in the erect posture. The bowels should be opened daily either by coarse bread, or the electuary of sulphur, or castor oil.

When these means fail, the tumours may be removed by excision.]

MENORRHAGIA.—IMMODERATE FLOW OF THE MENSES.

A flow of the menses is to be considered as immoderate, when it either returns more frequently than what is natural, continues longer than ordinary, or is more abundant than is usual with the same person at other times.

It may be the effect of two different and opposite states of the system: plethora with inordinate arterial vigour; and general relaxation or debility.

SPECIES.—1. *Menorrhagia rubra*; bloody, in women not pregnant nor in child-bed.

2. *Menorrhagia abortûs*; bloody, in pregnant women.

3. *Menorrhagia lochialis*; bloody, in women in child-bed.

4. *Menorrhagia vitiorum*; bloody, from local disease.

SYMPTOMS.—An immoderate flow of the menses, arising from plethora, is usually preceded by rigors, acute pains in the head and loins, thirst, turgid flushed countenance, universal heat, and a strong, hard pulse; on the contrary, where the symptoms of debility are prevalent in the system, the pulse is small and feeble, the face pallid, the respiration short and hurried on the slightest

effort; the general leuophlegmatic appearance of the patient indicates a laxity of every muscular fibre; the pains of the back and loins are rather aching than acute.

CAUSES.—The causes which predispose to the disease are plethora; a laxity or debility of the womb, arising from frequent parturition; difficult and tedious labours, or repeated miscarriages; a sedentary and inactive life, indulging much in grief and despondency; living upon a poor, low diet; drinking freely of warm enervating liquors, such as tea and coffee; and living in warm chambers.

The exciting causes of menorrhagia are, violent exercise, more especially in dancing; strokes or concussions on the belly; strains; passions of the mind; violent straining at stool; excess in venery, particularly during menstruation; the application of wet and cold to the feet; organic affections of the uterus, such as scirrhus, polypus, &c.

PROGNOSIS.—Menorrhagia, when it is the effect of plethora, rarely proves fatal; but when it occurs in habits much reduced by previous disease, or is produced by a laxity of the vessels of the organ, is profuse, long-continued, or of frequent recurrence; if the lips, nails, and other parts be pale; if the extremities become cold, and with these symptoms the patient falls into syncope, especially if there be any convulsions of the limbs, the danger is very great. When it arises from an organic affection of the part, which is frequently the case after the age of forty-five, it is usually incurable.

TREATMENT.—The cure of menorrhagia consists in,

1. Reducing the synocha-febrile symptoms when urgent, by general blood-letting, and the means recommended against inflammatory fever; strictly confining the patient to an horizontal posture; and avoiding every exertion both of body and mind.

2. Keeping the body gently open with laxative medicines that have but little stimulus.

Any of the common saline aperients, with infusion of roses, camphor, or almond mixture, in small and repeated doses.

R. Potassæ Tartratis \mathfrak{z} ss; Mannæ Optimæ \mathfrak{z} vj; Aquæ Menthae Viridis f \mathfrak{z} vi; Tincturæ Lavendulae Compositæ f \mathfrak{z} ss: Fiat mistura, cujus capiat ægra cochlearia tria, pro re nata.

R. Magnesiae Sulphatis \mathfrak{z} j; Aquæ Frigidæ f \mathfrak{z} x: Fiat enema.

3. Administering draughts of acidulated cold liquors frequently, as infusion of roses, lemonade, and the like.

4. The internal use of styptics, especially the acetate of lead, as directed against hæmoptysis, when the febrile symptoms are subdued. See p. 100. [The muriated tincture of iron is extremely valuable as an astringent.]

5. When symptoms of debility are present, tonic astringents: [quinine,] cinchona, cascarilla, kino, quercus, and wine.

6. The constant application of astringents to the vagina and

hypogastric region; especially ice, very cold water, or vinegar and water. [Vaginal injection must be tried in severe cases; equal parts of the liquor aluminis compositus and water will be beneficial. Ice may be passed into the vagina in bad cases.]

HÆMATURIA.—VOIDING OF BLOOD BY URINE.

SYMPTOMS.—An evacuation of urine, mixed with blood, preceded, when not the effect of injury, by pain, and sense of weight, in the loins; pain and heat in the region of the kidney.

CAUSES.—It is most frequently symptomatic of other renal affections—especially inflammation of the kidney and calculus. Or it arises from external violence, or great exertion. It may be produced by any of the causes of hæmorrhage, [or by excessive venereal indulgence.]

DIAGNOSIS.—It is distinguished from the high-coloured urine attendant on many diseases, by the deposit of a coagulum to the bottom of the vessel, and by its staining linen of a red colour.

TREATMENT.—If the disease be the consequence of injury, or the patient be of a full plethoric habit, bleeding, refrigerants, as advised under the head of Hæmoptysis. p. 384.

The saline purges of the sulphate of magnesia or soda.

Astringents; infusion of roses with an additional quantity of sulphuric acid; uva ursi; soda-water; opium; persicaria; [pariera brava.]

R. Confectionis Rosæ Gallicæ ʒj; Infusi Rosæ Ferventis Oj; Macera per horam dimidiam et cola: Hujus colaturæ fʒxiij; Acidi Sulphurici Diluti m. x: Fiat haustus ter in die sumendus.

R. Foliorum Uvæ Ursi contusorum ʒss; Aquæ Ferventis Oj; Macera, et liquorum frige factum cola. Hujus infusi fʒvij; Tincturæ Kino; Syrupi Zingiberis aa fʒss: Fiat mistura quotidie, partitis haustibus, haurienda.

R. Extracti Opii gr. ʒ; Extracti Papaveris gr. viij: Fiant pilule due ter in die sumendæ.

R. Foliorum Persicariæ Excisorum ʒj; Radicis Glycyrrhizæ ʒss; Aquæ Destillatæ Oj: Decoque ad ʒxiij; dein cola, pro potu, indies sumendo.

If it arise from irritation of the kidney by calculus, together with the remedies proper for that disease, frequent draughts of mucilaginous liquids; as thick barley-water, solution of gum-acacia, decoction of marsh-mallows sweetened with honey; opium; copious emollient clysters.

Should there be concomitant symptoms of debility, powerful astringents; alum; tinctura muriatis ferri; terebinthina; [acetate of lead with opium.] See p. 100.

R. Aluminis Purificati ʒss; Pulveris Kino gr. v: Fiat pulvis ter in die sumendus.

R. Tincturæ Muriatis Ferri *m. x*; Aquæ Cinnamonomi f̄ij: Fiat haustus ter in die sumendus.

R. Terebinthinæ de Chio ʒj; Kino Pulveris ʒss: Fiant pilulæ xxiv. quarum capiat æger tres ter in die.

R. Olei Terebinthinæ Rectificati f̄ij; Ovi vitellum unius. Sacchari Purificati ʒss; Aquæ Destillatæ f̄vij: Misce ut fiat mistura, ejus capiat æger cochlearia tria magna ter in die.

[When there is pain in the loins, leeches should be applied. If the bleeding is profuse, a cold hip-bath, or cold to the hypogastrium or perineum. If the blood coagulates in the bladder, it gives rise to difficult micturition, and requires catheterism. In such cases, the injection of warm water, decoction of marsh-mallows, or poppies, by means of the double syringe, or a gum elastic bottle, is productive of great benefit. This plan was recommended some years ago by Mr. Jesse Foote, and is now very much employed by Mr. Costello as a preparatory step to his lithotritic operations, and by M. Civiale of Paris, the inventor of lithotrity. Sir B. Brodie describes a most interesting case of great distension of the bladder with blood, which was relieved by tepid emollient injections.—Lectures on Diseases of the Urinary Organs, 1835.]

ORDER II..

INTUMESCENTIÆ.

CHARACTER.

External tumour of the whole, or of the greater part of the body.

GENERA.

Adipose Swelling.

POLYSARCIA, . . . Obesity.

Flatulent Swellings.

PNEUMATOSIS, . . . Windy swelling.

TYMPANITES, . . . Drum belly.

PHYSOMETRA, . . . Gas from the womb.

Dropsies.

ANASARCA, . . . Dropsy of the flesh.

HYDROCEPHALUS, . . . Water in the head.

HYDRORACHITIS, . . . Water in the spine.

HYDROTHORAX, . . . Water in the chest.

ASCITES, . . . Dropsy of the abdomen.

HYDROMETRA, . . . Dropsy of the womb.

HYDROCELE, . . . Dropsy of the testicle.

Swellings of the Solids.

PHYSCONIA, . . . Physconia.

RACHITIS, . . . Rickets.

POLYSARCIA.—OBESITY.

This disease is characterised by excessive corpulency, which depends on an increase of fat or oil in the cellular texture of the body.

The treatment consists in diminishing the quantity of nutritious matter, and increasing the excretion by exercise and purging.

PNEUMATOSIS, OR EMPHYSEMA.

This disease consists in a collection of air in the cellular membrane. It is in general confined to one place; but, in a few cases, spreads universally over the whole body, and occasions a considerable degree of swelling. It is attended with an evident crackling noise and elasticity, upon pressure; and when near the chest, with much difficulty of breathing, oppression, and anxiety.

CAUSES.—Wounds of the lungs. It sometimes arises spontaneously, or comes on immediately after delivery, without any evident cause.

TREATMENT.—The air is to be evacuated by scarifications into the cellular membrane, assisted by proper pressure with the hand. Violent dyspnoea and anxiety are to be relieved by bleeding and laxatives; and the pain and uneasiness arising from distention, by relaxing applications to the skin, as the unguentum cetaeci.

TYMPANITES.—DRUM BELLY.

SPECIES.—1. *Tympanites abdominalis*; or collection of air in the cavity of the peritoneum.

SYMPTOMS.—*Of the tympanites intestinalis.*—The disease sometimes comes on suddenly; at others it is more slow in its progress, and preceded by unusual flatulency, borborygmus, and a frequent expulsion of air upwards and downwards, attended with colic pains; the abdomen becomes considerably distended, tense, and elastic; costiveness; dysuria, and in some instances even ischuria; impaired appetite; thirst, heat, emaciation, hectic fever, not unfrequently dropsy or gangrene.

Of the tympanites abdominalis.—The swelling is more equal than in the former species; the tension greater; it is more elastic; and, upon percussion, sounds like a drum or bladder filled with air. There are no emissions of flatus or gas.

CAUSES.—Loss of tone in the intestinal canal; errors in diet; abuse of spirituous liquors; suppression of customary evacuations; a crude vegetable aliment; hysteria; gangrene.

DIAGNOSIS.—*From ascites.*—By the absence of fluctuation, and of those symptoms which characterize the hydropic diathesis.—See *Ascites*, p. 397.

PROGNOSIS.—*Favourable.*—An unimpaired constitution; the air contained within the cavity of the intestines, is more favourable than when it is accumulated within the cavity of the peritoneum; explosions of flatus or gas.

Unfavourable.—The disease being of long standing; great debility; emaciation; difficult respiration; cough; hectic fever. The abdominal species mostly proves fatal.

TREATMENT.—*Indications.*—I. To evacuate the air.*

II. To prevent its again accumulating.

To fulfil the first indication, recourse must be had to,

1. Antispasmodics and carminatives; opium, æther, oleum, anisi,

* Dr. O'Beirne passes an œsophagus tube into the sigmoid flexure, and allows the escape of gas. He relates cases of this disease in typhus, malignant uterine phlebitis, peritonitis, and strangulated hernia, in which a cure was effected. On Defecation.—Graves and others confirm this statement.

assafœtida, radix armoraciæ [tinctura capsici, cardamoms, ginger, oil of turpentine.

R. Spiritus Ætheris Sulphurici Compositi f̄3iij; Misturæ Camphoræ f̄3vij; Syrupi Zingiberis f̄3ss; Tincturæ Camphoræ Compositæ f̄3ss. Fiat mistura, cujus sumantur cochlearia tria magna quartâ quaque horâ.

R. Assafœtidæ gr. vj; Pulveris Rhæi gr. iv.; Olei Anisi *m.* ij; Fiant pilulæ duæ quartâ vel sextâ quaque horâ sumendæ.

R. Pilulæ Saponis cum Opio gr. iij; Pulveris Capsici gr. iij; Olei Fœniculi *m.* ij; Fiat pilula sextâ quaque horâ sumenda.

2. Warm purgative medicines and clysters.

R. Pilulæ Aloes cum Myrrha gr. vj; Pulveris Baccæ Capsici gr. iij; Fiant pilulæ duæ.

R. Extracti Colocynthis Compositi gr. vj; Pilulæ Galban. Com. gr. iij; Olei Carui *m.* ij; Fiant pilulæ duæ.

R. Pulveris Aloes Compositi gr. viij; Olei Anisi *m.* ij; Fiant pilulæ duæ.

R. Tincturæ Sennæ ̄3j; Vini Aloes ̄3ij; Aquæ Menthæ Pipe-ritæ f̄3iij; Syrupi Zingiberis f̄3j; Miscæ; cujus capiantur cochlearia duo pro re nata.

R. Potassæ Tartratis ̄3ss; Infusi Sennæ ̄3vss; Tincturæ Ejusdem f̄3jss; Syrupi Zingiberis f̄3ss: Fiat mistura, cujus sumantur cochlearia tria pro dosi.

R. Seminis Fœniculi Contusi ̄3iij; Aquæ Ferventis f̄3xvj; Macera per horam, dein cola pro enemate.

R. Infusi Fœniculi f̄3xij; Tincturæ Assafœtidæ f̄3ss: Fiat enema.

3. The application of cold to the abdomen, of ice or snow, or of warm stimulating plasters.

R. Olei Macis f̄3ss; Cerati Saponis ̄3ij; Fiat emplastrum toto abdomini imponendum.

R. Extracti Conii ̄3ij; Olei Anisi f̄3ss: Fiat emplastrum.

4. Friction with warm stimulating liniments.

R. Camphoræ ̄3ij; Olei Olivæ f̄3j; Olei Terebinthinæ Rectificati f̄3ss: Fiat embrocatio.

R. Olei Cajuputæ f̄3j; Terebinthinæ Rectificati f̄3ij; Fiat embrocatio.

5. Encircling the abdomen with a tight bandage.

6. In the tympanites intestinorum, advantage is occasionally obtained by the introduction of a fistula or elastic tube into the rectum, and suffering it to remain for some time.

7. In the other species, paracentesis with a very small trochar or lancet has been recommended.

The second indication requires,

1. Tonics; such as are recommended against dyspepsia.

2. Regular exercise.

3. Carefully avoiding all food of a flatulent nature.

4. The occasional use of stomachic aperients.

ANASARCA.—DROPSY OF THE FLESH.

CHARACTER.—A preternatural collection of serous or watery fluid in the cellular membrane of the whole or part of the body.

SYMPTOMS.—The disease generally commences in the lower extremities, and first shows itself towards evening with a swelling of the feet and ankles, which by degrees ascends, and successively occupies the thighs and trunk of the body. When it has become very general, the viscera are affected in a similar way; the cellular membrane of the lungs partakes the affection; the breathing becomes difficult, and is accompanied by cough, and the expectoration of a watery fluid. The urine is small in quantity, high coloured, and deposits a reddish sediment; sometimes, however, it is of a pale whey colour, and more copious. Costiveness; insatiable thirst; the skin is generally pale and arid, though sometimes a slight yet general inflammation takes place, when it becomes tense and shining. The water often oozes through the pores of the cuticle, or raises it in the form of small blisters; the countenance becomes sallow; torpor; heaviness; troublesome cough; slow fever.

CAUSES.—*Predisposing.*—An hydropic diathesis, which is known by a loose flabby fibre, pallid and bloated countenance, the phlegmatic temperament, and scanty secretion of urine.

Exciting.—Certain organic diseases, producing an obstruction to the free circulation of the blood; excessive discharges; suppression of customary evacuations; exposure to a moist atmosphere; the sudden striking in of eruptive complaints; crude and indigestible aliment; drinking large quantities of watery fluids; abuse of spirituous liquors; certain preceding diseases, as inflammation, the exanthemata, especially scarlatina, jaundice, diarrhoea, dysentery, phthisis, gout, intermittents of long standing.

Proximate.—Increased effusion; diminished absorption; or both united; [according to others, there is increased action in the capillaries]; and inflammation or congestion of the cellular or serous tissue.

DIAGNOSIS.—*From emphysema.*—By the swelling in anasarca being œdematous; in emphysema, elastic, and accompanied with crepitus; by the particular state of the urine; and other symptoms above mentioned.

PROGNOSIS.—*Favourable.*—The disease having been induced by causes which admit of easy removal; the strength little diminished; the constitution of the patient previously unimpaired; the appetite remaining entire; the respiration free; no great thirst; a gentle moisture on the skin.

Unfavourable.—Concomitant organic disease; great emaciation; erysipelatous inflammation; much drowsiness; petechiæ

and ecchymoses; hæmorrhage; feverish heat; great thirst; and quick small pulse.

TREATMENT.—*Indications*.—I. To evacuate the collected fluid.

II. To prevent its again accumulating.

The collected fluid is evacuated by,

1. Scarifications and punctures.

2. Blisters [antimonial ointment.

3. Friction.

4. Emetics and nauseating medicines, especially antimonium artarizatum and squills.

5. Cathartics; of elaterium, gamboge, croton oil, jalap, colocynth, submuriate of mercury, gratiola, crystals of tartar.

R. Extracti Elaterii gr. ij; Sacchari Purificati ʒj: Optime terantur simul, dein in pulveres octo æquales dividuntur, quorum capiat æger unum omni horæ quadrante donec adsit catharsis.

R. Extracti Colocynthidis Compositi; Extracti Jalapæ āā ʒj; Gambogiæ ʒss; Olei Juniperi m. iv: Fiant pilulæ xij, quarum capiantur tres omni hora donec alvus ter quaterve respondeat.

R. Pulveris Jalapæ, Compositi ʒvj; Hydrargyri Submuriatis; Pulveris Digitalis, āā; Pulveris Scillæ, āā gr. xij; Pulveris Antimonialis, āā gr. x; Pulveris Cinnamomi Compositi, āā gr. x: In chartulas xij divide, capiat unam mane nocteque nisi alvus nimis soluta sit.

The free use of imperial, or a solution of supertartrate of potass is also highly useful. p. 77.]

R. Pulveris Scammonie Compositi ʒss; Hydrargyri Submuriatis gr. v: Fiat pulvis catharticus.

R. Herbæ Gratiolæ Incisæ ʒij; Foliorum Sennæ ʒjss; Extracti Glycyrrhizæ ʒij; Electuarii Cassiæ ʒij; Aquæ Destillatæ Ojss: Leniter coque per quadrantem horæ, addendo sub finem coctionis, Myrrhæ Optimæ fʒj Potassæ Sulphatis ʒjss: Cola pro usu: et sumat æger cyathum parvum pro re nata.

6. Diuretics: of colchicum, seilla, acetas potassæ, digitalis, supertartras potassæ, spiritus ætheris nitrici, cantharis, juniperis, armoracia, sinapis, genista, lactuca virosa, tabacum.

R. Tincturæ Colchici fʒss; Syrupi Aurantii fʒjss: Fiat syrupus, ejus sumat æger cochleare minimum omni bihorio, vel subinde, donec nauseam promoveat.

[The vinum, or liquor colchici is a better formula.]

R. Pilulæ Scillæ gr. vj; Pilulæ Hydrargyri gr. ijss: Fiant pilulæ duæ nocte maneque capiendæ.

R. Pulveris Digitalis gr. j—ij; Hydrargyri Submuriatis gr. ʒ; Pilulæ Scillæ gr. vj: Fiat bolus ter in die adhibendus.

R. Infusi Armoraciæ Compositi fʒxij; Spiritûs Ætheris Nitrici fʒj; Syrupi Aurantii fʒj: Fiat haustus ter in die sumendus.

R. Potassæ Acetatis ʒj; Infusi Quassiæ fʒxij; Tincturæ Digitalis mxx: Fiat haustus ter in die capiendus.

R. Tincturæ Cantharidis m xxx; Spiritûs Ætheris Nitrici fʒj;

Misturæ Camphoræ f5xij ; Syrupi Zingiberis f5j : Fiat haustus ter in die sumendus.

R. Extracti Lactucæ Virosæ gr. x : Fiant pilulæ duæ ter in die capiendæ.

R. Extracti Lactucæ Virosæ ʒjss ; Infusi Gentianæ Compositi f5x ; Aquæ Menthæ Piperitæ f5iv ; Spiritus Juniperi Compositi f5j : Fiat haustus ter in die sumendus.

R. Radicis Armoraciæ Excisæ ʒij ; Seminis Sinapis ʒjss ; Baccæ Juniperi Contusæ ʒiij ; Vini albi Hispanici Olij : Digere per dies octo, dein cola :—capiat æger cyathum parvum vinosum bis quotidie.

7. Diaphoretics ; compound powder of ipecacuanha, camphor, antimonials assisted by tepid diluents ; the vapour bath ; the copious use of aqueous diluents ; water impregnated with tinctura ferri muriatis.

8. Bandages.

9. Mercury ; so exhibited as just to affect the gums.

The second indication demands,

1. A light nourishing diet, with pungent aromatic vegetables ; garlic, mustard, onions, cresses ; Rhenish wine.

2. Tonics ; cinchona, cascarilla, cusparia, quassia, preparations of steel, as recommended for dyspepsia.

3. The occasional use of diuretics and aromatics.

4. Regular exercise.

5. Cold bathing.

ASCITES.—DROPSY OF THE ABDOMEN.

SPECIES.—1. *Ascites abdominalis* :—with equal tumour of the whole abdomen, and with evident fluctuation.

2. *Ascites saccatus* :—with partial swelling of the abdomen, at least at the beginning, and with fluctuation not so evident.

SYMPTOMS.—*Of the peritoneal*.—It often comes on with loss of appetite ; sluggishness ; inactivity ; dryness of the skin ; oppression of the chest ; cough ; diminished urine ; costiveness ; shortly after a protuberance is perceived in the hypogastrium, which gradually extending, at length occupies the whole abdomen, which becomes uniformly swelled and tense, in a small degree elastic, and communicates to the hand, when struck against it, the sensation of its containing an undulating fluid.

As the distention increases, the difficulty of breathing becomes more considerable ; the countenance exhibits a pale or bloated appearance ; immoderate thirst ; dry parched skin ; high-coloured, thick and scanty urine ; depositing a lateritious sediment ; the pulse sometimes quickened, sometimes preternaturally slow and soft.—The disease seldom continues long without inducing an anasarous state of the lower extremities.

The *encysted dropsy* is seldom preceded, or in the first instance

accompanied, with any cachectic state of the system ; it is distinctly observed to begin in a particular part of the abdomen, and thence gradually diffuse itself throughout the whole cavity ; the strength of the patient is long unimpaired ; and the appetite and respiration continue good ; until the bulk and pressure of the fluid bring on various constitutional effects, which usually attend the true ascites in its early stages.

CAUSES.—In addition to the general causes of dropsy, (see *Anasarca*.) certain local affections, as diseases of the viscera of the abdomen ; scirrhusities of the liver, spleen, or pancreas ; enlargement of the mesenteric glands ; loss of tone in the peritoneum after pregnancy, or from atonic inflammation ; local injury.

DIAGNOSIS.—The fluctuation of the contained fluid ; the diminished urine ; the general leucophlegmatic appearance of the patient.

From tympanites.—See Tympanites. By auscultation and percussion.

From pregnancy.—Consult the signs of pregnancy delivered by authors on midwifery.

PROGNOSIS.—*Favourable.*—The urine little diminished, or becoming more copious ; the swelling of the abdomen diminishing ; the skin ceasing to be dry ; the respiration becoming free ; the strength originally little impaired.

Unfavourable.—Great emaciation ; sympathetic fever ; intense local pain ; coma ; the disease having been induced by a diseased state of the liver, brought on by the abuse of spirituous liquors, or by diseases of the other viscera ; the constitution otherwise impaired.

TREATMENT.—*Indications.*—I. To evacuate the fluid.

II. To prevent a second accumulation.

The first is effected by,

1. Purgatives, such as are recommended against anasarca.
2. Diuretics, similar to those ordered for anasarca.
- 3 Friction of the abdomen with [antimonial ointment, and iodine.

The editor has found the internal and external use of iodine an effectual remedy.] Liverwort poultices, three handfuls of the leaves.—*Short's Essay in the Edin. Med. and Surg. Journal, Jan., 1833.*

4. After a fair trial has been given to those remedies, which increase the natural secretions, without effect ; and the pressure and tension of the abdomen become insupportable, recourse must be had to tapping, or the paracentesis of the abdomen, [with a lancet and female catheter.—Sir A. Cooper's Lectures.]

The re-accumulation is sometimes prevented,

1. By removing the causes which induced the disease ; and by strengthening the tone of the parts in particular, and of the system in general.

2. If the disease proceed from chronic visceral obstruction, by mercury, administered both internally, and externally by friction to the abdomen; the union of submuriate of mercury with antimony or squills. [The iodides of potass and iron.]

3. If from relaxation, by tonics, aromatics, stimulants; as directed for anasarca.

HYDROTHORAX.—DROPSY OF THE CHEST.

SPECIES.—1. *Hydrothorax pleuræ*; the fluid occupying the cavity of the pleura.

2. *Hydrothorax pericardii*; the fluid occupying the cavity of the pericardium.

SYMPTOMS.—*Of water in the cavity of the pleura.*—Great difficulty of breathing, increased upon exertion; and most considerable during the night, when the body is in an horizontal posture; distressing sense of weight and oppression at the chest; the countenance is pale; sometimes, however, it has the asthmatic purple tinge, and conveys a peculiar and striking expression of anxiety; the urine is in small quantity; great thirst; anasarca of the upper extremities; the pulse is irregular, often intermitting for two, sometimes for three strokes; palpitation of the heart, sometimes so great as to be both seen and heard; cough, with expectoration generally tinged with blood: in describing his complaint, the patient frequently mentions his having the sensation of breathing through water; difficulty of lying upon one side; and when the disease exists in both cavities of the chest, the patient is incapable of lying down at all, and is obliged to be supported by pillows in an erect position; his sleep is disturbed by dreadful dreams of fire, of drowning, of falling down precipices, &c.; and frequently he awakes with a sense of suffocation, suddenly starts from his bed, and is some time before he recovers his recollection; the arm of the side in which the water is collected is generally cold and torpid, and often affected with numbness.—See Pleuritis, p. 263. Metallic tinkling; respiratory murmur, feeble or extinct.

Of water in the cavity of the pericardium.—In addition to many of the above symptoms, the heart in this disease is greatly enlarged, so as to be felt to palpitate, even as low as the seventh or eighth rib. The irregularity of the pulse is more remarkable; at one instant it is imperceptibly small and rapid, in the next like a remarkably hard wire. The difficulty of breathing often assumes an intermittent form, and in the paroxysm is much more severe and distressing. Anasarca of the extremities takes place in the advanced period of the disease; and there is the same starting from sleep as in the true hydrothorax.—See Pericarditis, p. 202.

CAUSES.—The general causes of dropsy; (see Anasarca;) obstruction to the free circulation of the blood through the lungs, by dis-

case of the thoracic viscera, or loss of tone in the membranes lining the chest.

DIAGNOSIS.—The distinguishing symptoms are, the extreme difficulty of breathing; the incapacity of lying upon one, sometimes upon either side; the sudden starting from sleep; the peculiar pulse before described; the striking appearance of the countenance; the numbness of the arms; the palpitation of the heart.

From collections of matter and blood.—By the characteristic marks enumerated by writers on surgery, when treating on such diseases of the chest.

From syncope anginosa.—The one disease consists of distinct paroxysms; each of which is brought on by certain exciting causes (see Syncope Anginosa). In the other the symptoms are usually permanent; the peculiar sensation of heat extending to the arms, which takes place in syncope anginosa, is rarely felt in hydrothorax. When syncope has long existed, and the symptoms have become less marked than in its first attack, a distinction is extremely difficult to be formed.

PROGNOSIS.—Will always be unfavourable; more especially when hydrothorax is the consequence of organic disease; when it occurs in a shattered constitution; when the symptoms become more and more severe, and are attended with coma and spitting of blood.

TREATMENT.—The same evacuant plan is here to be pursued as recommended for the cure of anasarca and ascites.

The diuretics most usually employed are, digitalis, squills, crystals of tartar.—See Treatment of Anasarca, p. 386..

[Frictions and blisters on the chest, with colchicum, digitalis, &c. Elaterium.

If there be much debility, myrrh combined with spiritus ætheris nitrici, or other tonics and diuretics united; with the addition of frequent blisters to the chest.

R. Myrrhæ Optimæ ℥ss; Spiritus Ætheris Nitrici f ʒj; Infusi Rosæ f ʒxiij; Syrupi Ejusdem f ʒj; Fiat haustus ter in die capiendus.

R. Myrrhæ Optimæ ℥ss; Olei Essentialis Juniperi ℥i; Pulveris rhei q. s.; Fiat bolus ter in die sumendus.

If these means should be ineffectual, and the disease appear to be purely local, recourse should be had to the operation of paracentesis thoracis, exploration with a grooved-needle, as proposed by Dr. Thomas Davis, so difficult is the diagnosis.

Inhalation of oxygen gas is said to have been successfully tried.

ORDER III.

IMPETIGINES.

CHARACTER.

Cachexy, chiefly deforming the skin and external parts of the body.

GENERA.

SCROFULA,	. . . . .	Scrofula.
SYPHILIS,	. . . . .	Venereal disease.
SCORBUTUS,	. . . . .	Scurvy.
ELEPHANTIASIS,	. . . . .	Elephant skin.
LEPRA,	. . . . .	Leprosy.
FRAMBESIA,	. . . . .	Raspberry-like eruption.
TRICHOMA,	. . . . .	Trichoma.
ICTERUS,	. . . . .	Jaundice.

SCROFULA.

The various external and local symptoms produced by this disease are described by writers on surgery.

Its first appearance is usually between the third and seventh years of age, or at any period before the age of puberty, after which it seldom makes its first attack. It most commonly affects children of a lax habit, with smooth, soft, and fine skins; fair hair; a peculiar fulness and rosy appearance of the face; large eyes, and very delicate complexions. It is also apt to attack such children as show a disposition to rickets: marked by a protuberant forehead, enlarged joints, and tumid abdomen. [It is one of the commonest diseases; there is scarcely a family without it.]

CAUSES.—It seems to be peculiar to cold and variable climates; it is mostly the effect of an hereditary predisposition; and is excited by crude indigestible food, bad water, living in damp, low situations, debility however induced; syphilis.

TREATMENT.—The remedies which have been employed with the greatest success, [until iodine was discovered,] are,

1. Sea-bathing, and living by the sea-side.
2. Mineral waters; the sulphureous and chalybeate.
3. Tonics; especially Peruvian bark, myrrh, sulphate of iron, and ammoniacal iron.

The *mistura ferri composita*, in the dose of two table-spoonsful three times a-day.

4. The inhalation of oxygen gas

5. The juice of the fresh leaves, or strong decoction of the dried leaves of the tussilago.

6. Mercurial alteratives; the hydrargyrum cum sulphure, sulphuret and submuriate of mercury, Plummer's pill.

Mercury, when taken so as to affect the mouth, mostly increases this disease; and it may be considered as a bad medicine in the generality of scrofulous cases given in any form: but now and then we find it otherwise. Mercurial alteratives, with conium and cinchona, have in some cases been very serviceable.

7. Antimonials, with decoctions of guaiacum, cinchona, sarsaparilla, sassafras, mezereon, and dulcamara.

The old decoctum Lusitanicum is a very excellent anti-scrofulous medicine, especially when the disease makes its appearance in the periosteum and bones of adults.

DECOCTUM LUSITANICUM.

R. Radicis Sarsaparillæ, Ligni Sassafras Incisi, Ligni Santali Rubri, Ligni Guaiaci, Excisi, $\text{āā } \overline{\text{ʒ}}\text{ss}$; Radicis Mezerci, Seminum Coriandri $\text{āā } \overline{\text{ʒ}}\text{ss}$; Aquæ Destillatæ Ox; Decoque ad octarios quinque: Capiat æger octarium unum quotidie, partitis haustibus.

[The empirics in Ireland cure scrofula with this remedy, and compel the affected to take it as the common drink for several weeks, and to avoid every kind of aliment, unless unfermented bread. They dress ulcers with resinous ointment and red precipitate.]

8. Muriated barytes, and muriate of lime.

R. Solutionis muriatis barytæ Ph. Ed. $\text{m } \text{iv}$; Aquæ Cinnamomi $\text{f } \overline{\text{ʒ}}\text{ss}$; Fiat haustus ter in die capiendus.

This medicine should be very gradually and cautiously increased, so that the patient shall take as much as the stomach will bear without producing nausea.

R. Calcis Muriatis gr. iv ; Extracti Conii gr. v : Fiant pilulæ duæ ter quotidie capiendæ.

This crystallised muriate of lime remains in the retort after the sublimation of the carbonate of ammonia.

9. Sedatives, especially conium and hyoseyamus.

10. Lime-water.

11. Alkalies; especially soda with Peruvian bark.

R. Sodæ Carbonatis gr. vj ; Pulveris Cinchonæ ʒj : Fiat pulvis ter in die sumendus.

R. Sodæ Carbonatis Exsiccatæ gr. viij ; Pulveris Cinchonæ ʒj : Fiat pulvis ter in die adhibendus.

12. Burnt sponge; light, nutritive, and generous diet; pure dry air; friction; moderate exercise.

R. Spongiæ Ustæ gr. x—xxx ; Sacchari Purificati ʒss ; Fiat pulvis ter in die capiendus.

[The preparations of iodine are now generally employed in scro-

fulous complaints, engorgements of glandular and other organs, and many kinds of tumours. I have given a full account of the different combinations of iodine, in another work, *A New Practical Formulary of Hospitals*, 1836, and they are now included in the new edition of the *London Pharmacopœia*, just published, and also in my *Medico-Chirurgical Formulary for 1837*.]

SCORBUTUS.—THE SCURVY.

SYMPTOMS.—Heaviness, weariness, dejection of spirits, anxiety and oppression at the præcordia.—As the disease advances, the countenance becomes sallow and bloated; respiration is hurried by the least exertion: the breath becomes offensive; wandering pains are felt in different parts of the body, particularly during the night; the pulse is small and frequent; the gums swell, become spongy, and bleed upon the slightest touch; they separate from the teeth, which become loose; petechiæ and maculæ appear in various parts; the slightest scratch degenerates into a foul and ill-conditioned ulcer; spontaneous ulceration likewise takes place upon the gums, and upon the surface of the body; the joints become swelled and stiff; the tendons of the legs rigid, contracted, and exceedingly painful; the bowels are either obstinately constipated, or there is diarrhœa: the urine is high-coloured, covered with an oily pellicle, and changes vegetable blues to a green colour: great emaciation ensues; passive hæmorrhages take place from the nose, the ears, the anus, and even from the extremities of the fingers; all the excretions become intolerably fetid; still, however, the appetite frequently remains entire, and the patient retains his intellectual faculties, until death relieves him from a horrid complication of misery.

CAUSES.—Defect of nourishment; diet of salted or putrescent food, with deficiency of vegetables; want of cleanliness; cold united to moisture, or the transition from a warm to a cold temperature; want of exercise; depressing passions of the mind.

DIAGNOSIS.—*From malignant fever.*—By the absence of feverish symptoms; by the intellectual faculties being little impaired; by the disease coming on more gradually, and continuing a much longer time: by its not being contagious.

PROGNOSIS.—Will be drawn from the severity of the disease; the situation of the patient with respect to vegetable diet, or other proper substitute.

Favourable circumstances.—The constitution not having been weakened by previous disease; little reduction of strength; moist skin; bilious diarrhœa; the patient capable of muscular motion; slow pulse; the petechiæ, if any appear, being of a bright red colour; the absence of ulceration.

Unfavourable.—Great prostration of strength; redness of the eyes; flushed countenance; quick weak pulse; profuse hæmorrhages of

dissolved blood; petechiæ and maculæ of a dark livid colour; extreme oppression at the præcordia; fetid and involuntary evacuations.

TREATMENT.—*Indications.*—I. To correct the septic tendency of the fluids.

II. To palliate urgent symptoms.

III. To restore the tone of the solids.

The first indication is fulfilled by the use of substances which contain oxygen, especially,

1. Vegetable food of every description; the vegetable acids; as the orange, the lime, the lemon, or the citric acid in a concrete form; if there be great prostration of strength, they may be united with wine. [This plan was first proposed by the late Sir Gilbert Blane, Bart., in 1780.

2. Fermented and fermenting liquors; as ale, cyder, spruce beer, infusion of malt, fermenting wines, &c.; the subacid fruits; sugar.

3. Oxygen; which may be breathed, or given in the oxygenated muriate of potass.

4. A solution of nitre in common vinegar.

5. Mineral acids; more particularly the oxygenated muriatic, the nitric, and sulphuric.—See pp. 88—93.

Saline medicines, according to Stevens.—See p. 93

R. Potassæ Nitratis ʒij; Aceti Communis fʒij; Syrupi fʒij; Aquæ Destillatæ fʒxij: Fiat potio quotidie bibenda.

R. Acidî Sulphurici Diluti fʒjss; Syrupi Rosæ fʒij; Aquæ Destillatæ fʒiv: Misce pro potu ordinario.

R. Acidî Nitrici fʒj; Syrupi Rosæ fʒij; Aquæ Destillatæ fʒxiv: Misce pro potu communi.

4. Diaphoretics; especially the serum sinapeos.

7. Occasional aperients of infusion of tamarinds, cream of tartar, the sulphates of soda and magnesia.

8. The utmost attention to cleanliness.

With regard to the second indication,

Ulcerations of the gums require astringent gargles of alum, muriatic acid, linimentum aruginis, decoction of bark, the steam of vinegar.

Acute pains are relieved by opium.

Oppression at the chest, and difficulty of breathing, by blisters, nitric and sulphuric æther with camphor.

Contractions of the muscles of the legs, by fomentations of vinegar and water, or emollient cataplasms; friction.

Scorbutic ulcers upon the surface of the body, by the means recommended in practical works on surgery.

The third indication requires,

1. Pure, temperate, and dry air.

2. Regular exercise.

3. A nutritive diet of recent animal and vegetable food.

4. Tonics and astringents, of Peruvian bark, the mineral acids, preparations of iron.

5. Stimulants, of horse-radish, mustard, pepper, wine, &c.

ICTERUS.—JAUNDICE.

SPECIES.—I. *Icterus calculosus*:—with acute pain in the epigastric region, increased after meals, with discharge of bilious concretions or gall stones.

2. *Icterus spasmodicus*; without pain after spasmodic diseases or affections of the mind.

3. *Icterus hepaticus*; without pain after diseases of the liver.

4. *Icterus infantum*; occurring in infants shortly after birth.

SYMPTOMS.—Languor; inactivity; loss of appetite; sense of uneasiness or pain in the right hypochondrium; heat and pricking of the skin; bitter taste in the mouth; the tunica conjunctiva of the eye is perceived to become of a yellow colour, and soon afterwards the whole surface of the body; the urine is high-coloured, and tinges linen yellow; nausea; vomiting; obstinate costiveness or diarrhœa; the stools are of a clay colour; the pulse is generally slow, yet sometimes, especially where the pain is acute, it becomes quick and hard, and there is a feverish heat and dryness of the skin. Should the disease be long protracted, petechiæ and maculæ sometimes appear in different parts of the body; the skin, before yellow, turns brown, or livid; even passive hæmorrhages and ulcerations have broken out, and the disease has in some instances assumed the form of scurvy.

CAUSES.—Biliary calculi in the gall-bladder, or its duct; inspissated bile; spasmodic contraction of the ducts themselves, often from passions of the mind; pressure upon the ductus communis choledocus; either by collections of hardened feces, by tumours of neighbouring viscera, as of the pancreas, of the mesenteric glands, of the pylorus, of the stomach, &c.; diseases of the liver itself; as inflammation, partial scirrhus, &c.; the active operation of some poisons and purgatives; morbid redundance of bile.

Proximate.—The absorption of bile into the sanguiferous system.

DIAGNOSIS.—The characteristic symptoms which distinguish this from every other disease are, the yellow colour of the skin, more especially observable in the tunica conjunctiva of the eye; the bitter taste in the mouth; the yellow tinge communicated to linen by the urine; the white or clay-coloured feces; added to the sense of pain or uneasiness in the right hypochondrium.

PROGNOSIS.—*Favourable.*—The disease having arisen from a cause that admits of easy removal; as spasm, accumulated feces, the temporary pressure during pregnancy, &c. &c.; the strength and appetite little impaired; the disease suddenly appearing; cessation of local pain, followed by bilious diarrhœa.

Unfavourable.—Circumstances leading to the suspicion of the disease having originated in a scirrhus state, either of the liver itself, or of the neighbouring viscera: as the previous irregular life of the patient, long-continued local pain and tumour, &c.; symptoms of hectic; colliquative evacuations; symptoms showing a determination to the head; as vertigo, flushed countenance, headache; supervening anasarca; its being complicated with any other disease.

TREATMENT.—*Indications.*—I. To remove the cause of obstruction to the passage of the bile into the duodenum.

II. To palliate symptoms.

If it arise from calculus, from spissitude of the bile, or spasm, and is attended by much pain or symptoms of fever, recourse must be had to,

1. Cathartics; especially aloes, castor oil, soap, submuriate of mercury, and tartrate of potass.

R. Potassæ Tartratis $\overline{5}$ jss; Infusi Quassiae $\overline{5}$ ij; Infusi Senneæ $\overline{5}$ iv; Tincturæ Ejusdem, Syrupi Aurantii, aa $\overline{5}$ ss: Fiat mistura, cujus sumat æger cochlearia tria magna ter in die.

R. Saponis Duri gr. vj; Extracti Colocyntidis Compositi gr. ij; Extracti Gentianæ gr. ij; Pulveris Rhei q. s.: Fiant pilulæ duæ ter in die capiendæ, superbibendo, haustum infusi anthemidis.

R. Hydrargyri Submuriatis gr. j; Pulveris Rhei gr. vj; Saponis Duri gr. iv: Fiant pilulæ duæ singulis auroris sumendæ.

R. Pilulæ Aloes cum myrrha gr. vj; Saponis Duri gr. iv; Fiant pilulæ duæ nocte maneque capiendæ.

R. Aloes Socotrinæ gr. iij; Saponis Duri gr. vj: Fiant pilulæ duæ mane seroque deglutiendæ.

2. Gentle emetics, where the local pain is not acute.

Keeping up a constant nausea with small doses of ipecacuanha, often emulges the bile-ducts more effectually than purgatives.

3. The warm bath; fomentations and blisters to the right hypochondrium or pit of the stomach.

4. Emollient clysters.

5. Opium, conium, hyoseyamus, tepid diluents, where the pain is evidently spasmodic.

6. Lithontriptics of soda, potass, soap; also raw eggs, turpentine with æther, and stomachic bitters, especially taraxacum, calumba, gentian.

7. Bath and Cheltenham waters.

If from inflammation, by the means laid down for the cure of hepatitis.

If from scirrhus tumours, iodine, mercury, internally and externally, by friction, upon the abdomen; conium; electricity, and other means elsewhere recommended.

If from accumulations of hardened fæces in the intestines, brisk cathartics; copious enemata; dashing cold water upon the extremities.

Should the disease assume the scorbutic form, acids, and other remedies adapted to that complaint, must be had recourse to.

In some cases there is a most troublesome itching of the skin, accompanied by an inclination to sleep, or somnolence, and frequently the liver becomes disordered or disorganized. Liver disease or abdominal dropsy is a frequent consequence of jaundice ; and patients seem often astonished after jaundice has disappeared for several years, that the medical practitioner alludes to it.



I N D E X.

	Page		Page
ABDOMEN, dropsy of . . .	397	Astromus	147
Acarus	147	Atonic gout	375
Achroia	145	Atrophia	279
Adermata	146	Atrophy	279
Abdomenoscöpy	48	Auscultation, account of . . .	38
Action of Medicines	54	— of respiration	38
Adynamia	256	— varieties of respiration . . .	38
Ages, diagnosis by	49	— respiratory murmur	40
Ague	106	— respiration puerile	40
— quotidian	106	— respiration bronchial	40
— tertian	106	— respiration cavernous	40
— quartan	106	— râles or rattles	40
— pathology of	108	— râle crepitous	40
Amygdalitis	306	— râle mucous	40
Anasarca	395	— râle sonorous	40
Anatomy, definition of	4	— râle sibilous	40
Aneurism of the Heart	233	— râle gurgling, or cavernous	41
Angina pectoris	257	— stethoscopic signs in diseases	41
Aphthæ	288	— of the lungs	41
Apoplexia	162	— expectoration	40
— sanguinea	162	— in catarrh	40
— serosa	162	— phthisis	40
— hydrocephalica	162	— pneumonia	40
— atrabiliaria	163	— pleuritis	41
— traumatica	163	— hydrothorax	40
— venenata	163	— œdema	40
— mentalis	163	— hepatization	40
— cataleptica	164	— vomica	40
Arachnitis	154	— emphysema	40
Arteries, auscultation of	36	— pulmonary apoplexy	40
Ascarides	337	— pneumo-thorax	40
Ascites	397		
Asthma	279		
— spasmodic of infants	261		

	Page		Page
Auscultation, tuberculous		Auscultation in nervous	
abscess	41	palpitation of the heart	29
— dilated bronchi	41	— stethoscopic indica-	
— bronchial hæmorrhage	41	tions of fractures	43—46
— gangrene	41	— of urinary calculus	43
— of the voice	41	— in abscess of the liver	43
— bronchophony	41	— of hernia	43
— pectoriloquy	41	— of tympanites	43
— egophony	41	— stethoscopic indica-	
— of the heart and cir-		tions of hydrocele	43
culatory system	22	— of utero-gestation	42
— actions of the heart	22	— in diseases of the ear	43
— præcordial regions	22		
— impulse or impulsion	22	Bark, prescriptions of	82
— of the heart sound	23	Bastard pox	126
— rhythm	23	Belly, dropsy of	397
— bellows sound	23	Benign measles	126
— rasp, file, or saw sound	24	Bilious diarrhœa	115
— new leather sound	24	— fever	115
— purring sound	24	Bladder, inflammation of	363
— palpitations, irregu-		hæmorrhage from	390
larities, and intermis-		Bleeding from the nose	381
sions	26	— — — — — lungs	382
— stethoscopic signs in		— — — — — stomach	385
diseases of the heart	26	— — — — — bladder	390
— in hypertrophy	27	Bleeding piles	386
— dilatation of the left		Bleedings, involuntary	380
ventricle	28	Blood, discharges of	380
— dilatation with hy-		— spitting of	382
pertrophy	21	Bloody urine	390
— hypertrophy of one		Bowels, inflammation of	124
ventricle, with dilata-		Brain, inflammation of	149
tion of the other	28	— tapping of	161
— hypertrophy and di-		— ramollissement	170
latation of the auricles	28	— degenerescences	171
— in diseases of the		— softening	170
valves, cartilaginous or		Broad tape-worm	337
osseous	29	Bronchitis	269
— in verrucose vegeta-		Bronchophony	41
tions	29	Bruit de cuir	25
— in induration of the		— râpe	25
heart	29	— soufflet	25
— in pericarditis	29		
— in hydro-pericardium	29	Cachexiæ	401
— aneurism of the tho-		Calculous colic	336
racic aorta	29	Caloricity	7

	Page		Page
Camphor, strong mixture of	31—32	Croup	258
Canine madness	131	——— spasmodic	261
Carditis	231	Cynanche tonsillaris	306
Carphology	14	——— maligna	312
Carus	153	——— trachealis	258
Catarrh	269	——— pharyngea	262—308
Cataphora	153	——— parotidea	262
Catarrhus	269	Cystitis	363
Causes of disease	11	Dance of St. Vitus	178
Cellular membrane, dropsy of	395	Delirium tremens	137
Cerebritis	149	Dermatitis	140
Cerebro-spinal diseases	19	——— exanthemata	140
Cheek, diseases of	297	——— vesiculæ	140
Chemistry, use of	6—54	——— bullæ	140
Chest, dropsy of	399	——— pustulæ	141
Chicken-pox	126	——— <i>a.</i> phlyzadium	141
Chlorides, use of	88	——— <i>b.</i> psydricum	141
Chlorosis	366	——— <i>c.</i> achor	114
Cholera	340	——— <i>d.</i> favus	141
——— epidemica	341	——— papulæ	141
Chorea Sancti Viti	178	——— tubercula	141
Cinchona, prescriptions of	32	——— furunculi	141
Classification of diseases	60	——— squamæ	142
——— Physiological	66	——— gangrena	142
Cæco-colitis	332	——— decoloration	142
Cæliac diarrhœa	346	——— multiform	142
Cold	269	Dermohæmorrhagiæ	143
Colic	336	Dermoneuroses	144
Colica	336	Dermachromata	145
Colica pictonum	336	Dermodyschroia	145
Comata	153	Dermocæccerises	145
Confluent small-pox	120	Dermocryptoncoses	146
Congestion, cerebral	93—150	Dermography	140
Constitutions, diagnosis by	49	Diabetes	364
Consumption, pulmonary	274	Diagnosis of diseases	12
Contagious diseases	119	Diarrhœa	346
Continued fevers	73	Digestive system, signs by	46
Contractility	7	Discharges of blood	380
Convalescence	94	Diseases, doctrine of	10
Convulsion. See Epilepsy	175	——— causes of	11
Cough, hooping	282	——— diagnosis of	14
Countenance, diagnosis by	14	——— signs of	13
Cow-pox	124	——— symptoms	13
Cranii paracentesis	161	——— classification of	50
Crapulous diarrhœa	346	——— treatment of	51

	Page		Page
Diseases, clinical examination of . . .	60—67	Fever, bilious . . .	115
Disorders . . .	10	—— cerebral . . .	98—153
Dentition . . .	299	—— erysipelatous . . .	133
Distinct small-pox . . .	119	—— gastric . . .	99
Dropsy of the chest . . .	399	—— hectic . . .	117
—— cellular . . .	393	—— inflammatory . . .	73
—— membrane, or flesh . . .	395	—— intermittent . . .	106
—— abdomen . . .	397	—— pathology of . . .	103
Drum belly . . .	393	—— low nervous . . .	78
Dyschroia . . .	145	—— miliary . . .	136
Dysentery . . .	332	—— mixed . . .	95
Dysentery . . .	332	—— nervous . . .	73
Dyspepsia . . .	320	—— pulmonic . . .	99
		—— putrid . . .	84
		—— remittent . . .	115
Ears, diagnosis by . . .	16	—— infantile . . .	116
Economy, animal . . .	3	—— scarlet . . .	130
—— living . . .	3	—— spotted . . .	84
Elements of medicine . . .	2	—— typhus . . .	78
Emphysema . . .	392	—— vesicular . . .	132
Emprosthotonos . . .	172	—— yellow . . .	102
Encephalitis . . .	149	Fevers . . .	73
Encysted dropsy . . .	50	—— continued . . .	73
Endemic diseases . . .	50	—— eruptive . . .	119
Endocarditis . . .	213	—— intermittent . . .	106
Enteritis . . .	324	—— pathology of . . .	108
—— gastro- . . .	327	Flooding . . .	388
Epidemic diseases . . .	50	Flux . . .	332
Epilepsia . . .	175	Fluxes with pyrexia . . .	269
Epilepsy . . .	175	Fractures, signs of . . .	43
Epistaxis . . .	381	Functions, intellectual . . .	8
Eruptive fevers . . .	119	—— organic . . .	3
Erysipelas . . .	133	Furious madness . . .	185
Etiology . . .	11		
Exanthemata . . .	119	Gangrene of the cheek . . .	296
Expansibility . . .	7	Gastritis . . .	317
Eye, diagnosis by . . .	15	Gastro-enteritis . . .	327
		Gingivitis . . .	303
Face, diagnosis by . . .	14	Glands salivary, diseases of . . .	305
Faces, appearance of . . .	47	Glass-pox . . .	126
Fainting . . .	253—256	Glossitis . . .	299
Falling sickness . . .	175	Gout . . .	375
Febres . . .	73	Gravel . . .	355
Febrile diseases . . .	73	Green sickness . . .	366
Febris hectica . . .	117	Gums, diagnosis by . . .	16
—— intermittens . . .	106		
—— remittens . . .	115	Hair, diseases of . . .	146

	Page		Page
Hæmatemesis . . .	385	Hectic fever . . .	117
Hæmaturia . . .	390	Hemiplegia . . .	167
Hæmoptysis . . .	382	Hepatic diarrhœa . . .	346
Hæmorrhage from the		Hepatitis . . .	343
nose . . .	331	Hooping-cough . . .	282
— from the lungs . . .	382	Hydrocephalus . . .	156
— from the uterus . . .	388	Hydropericardia . . .	236
— from the stomach . . .	385	Hydro-pneumo-pericardia . . .	236
— from the bladder . . .	390	Hydrophobia . . .	181
Hæmorrhagiæ . . .	380	Hydrorachis . . .	189
Hæmorrhoids . . .	386	Hydrothorax . . .	399
Head, water in . . .	156	Hygiene . . .	51
Heart, diseases of . . .	191	Hypochondriasis . . .	184
— diagnosis by . . .	23—193	Hysteria . . .	179
— impulse of . . .	22	Hysterics . . .	179
— movements of . . .	23	Hysteritis . . .	365
— rhythm of . . .	25		
— sounds of . . .	24	Icterus . . .	404
— hypertrophy of . . .	23	Idiosyncrasies . . .	50
— valves, diseases of . . .	24	Ileus . . .	337
— diseases of . . .	26—191	Iliac passion . . .	337
— inflammation of . . .	231	Ilicia . . .	112
— semeiology . . .	191	Immoderate flow of the	
— diagnosis . . .	193	menses . . .	388
— etiology . . .	195	— of urine . . .	364
— prognosis . . .	199	Impetigines . . .	401
— treatment . . .	260	Indigestion . . .	320
— aneurism of . . .	233	Infectious diseases . . .	119
— atrophy of . . .	235	Inflammation . . .	148
— œdema of . . .	236	— of the pha-	
— dilatation of . . .	237	ryn timer . . .	308
— hypertrophy of . . .	237	— lungs . . .	264
— contractions of . . .	239	— stomach . . .	317
— wounds of . . .	241	— intestines . . .	324
— concretions of . . .	242	— peritoneum . . .	329
— polypi of . . .	242	— liver . . .	348
— displacements of . . .	247	— kidney . . .	352
— hernia of . . .	247	— bladder . . .	363
— vices of conformation . . .	247	— brain . . .	149
— neuroses of . . .	248	— pleura . . .	263
— nervous palpitations . . .	249	— spleen . . .	365
— neuralgiæ of . . .	253	— tonsils . . .	261
— lipothymia . . .	253	— uterus . . .	365
— irregularities of pul-		— heart . . .	231
sation . . .	254	— pericardium . . .	202
— syncope . . .	256	Inflammations . . .	148
— anginosa . . .	257		

	Page		Page
Inflammatory fever . . .	73	Marcores . . .	280
——— sore throat . . .	261	Materia medica, use of . .	52
Influenza	269	Maw-worm	337
Intermittent fever . . .	106	Measles	126
——— pathology . . .	108	Meconial colic	336
Intestines, inflammation		Medicine, definition of . .	5
of	324	——— principles of . . .	2
Intumescencie	392	——— clinical	60
Involuntary discharges of		Medicines, enumeration of .	53
blood	380	——— sources of	54
Jaundice	404	——— physical charac-	
Jaw, locked	172	ters of	55
Kidney, inflammation of .	352	——— botanical cha-	
——— calculi in	355	racters of	56
——— chronic diseases of .	357	——— elements of	56
——— gravel in	355	——— proximate princi-	
——— scirrhous of	360	ples of	56
——— neuralgia of	361	——— preparation of . . .	57
Kine-pox	126	——— rules for pre-	
Laryngismus stridulus . .	261	scribing	59
Lemonade	77	——— actions of on the	
Lethargy	158	body	55
Lienteria	346	——— effects of	61
Life description of . . .	7	——— physiological . . .	61
Lips, diagnosis by	16	therapeutical	61
Liver, inflammation of . .	348	doses of	378
Locked jaw	172	Melancholia	183
Long round worm	337	Melancholy	183
——— hair-tailed thread-		Meningitis	154
worm	337	Menorrhagia	388
Looseness	346	Menses, immoderate flow	
Low nervous fever	78	of the	388
——— spirits	184	——— retention of	366
Lumbricus teres	337	Mensuration	46
Lungs, consumption of . .	274	Metritis	365
——— bleeding from . . .	382	Mild typhus	78
——— inflammation of . .	264	Miliaria	136
Madness	185	Miliary fever	136
——— canine	181	Misplaced gout	375
Maladermia	145	Mixed fever	95
Malignant measles	126	Motion, diagnosis by . . .	15
——— sore throat	312	Morbili	126
Mania	185	Mouth, diseases of	285
		Mucous diarrhea	346
		Mucus, properties of . . .	337
		Mumps	262
		Myelitis	188

	Page		Page
Nails, diseases of . . .	146	Physic, principles of . . .	1
Nephritis . . .	352	Physiology, definition of . . .	5, 6
Nervous fever . . .	78	Piles . . .	386
—— low fever . . .	78	Piperina . . .	112
—— diseases . . .	162	Plants, physical proper-	
Nettle-rash . . .	137	ties of . . .	53
Neuroses . . .	162	Pleura, inflammation of . . .	263
Nosography . . .	66	Pleuritis . . .	263
Nosology . . .	50—66	Pleurodynia . . .	263
Nose, bleeding from . . .	381	Pleurosthotonos . . .	172
—— diagnosis from . . .	18	Pneumatosis . . .	392
		Pneumonitis . . .	264
Obesity . . .	392	Pock, chicken . . .	126
Obstetric Auscultation . . .	42	—— cow . . .	124
Œstrus . . .	147	—— glass . . .	126
Onychonology . . .	146	—— kine . . .	124
Opisthotonos . . .	172	—— small . . .	119
Oxymuriatic acid, for-		—— swine . . .	126
mula for . . .	80	Podagra . . .	375
		Polysarcia . . .	392
Pain varieties of . . .	13	Position, diagnosis by . . .	13
Painter's colic . . .	339	Pregnancy, signs of . . .	42
Palpitations, nervous . . .	249	Prescribing, rules for . . .	59
Palsy . . .	167	Profluvia . . .	269
Paralysis . . .	167	Properties, vital . . .	7
Paraplegia . . .	271	Pulex . . .	147
Paraphrenitis . . .	154	Pulmonary consumption . . .	274
Parotideal cynanche . . .	262	Pulse, description of . . .	21
Partial paralysis . . .	167	Purging . . .	346
Pathology, definition of . . .	5—10	Pus, properties of . . .	276
Pectoriloquy . . .	41	Putrid fever . . .	34
Pediicularis morbus . . .	147	—— sore throat . . .	312
Pediculus . . .	147	Pyrexia . . .	73
Pemphigus . . .	138	Pyrosis . . .	324
Percussion . . .	43—46		
Peritonitis . . .	329	Quartan ague . . .	106
Pericarditis . . .	202	Quinsey . . .	306
Pericardium, dropsy of . . .	236	Quotidian ague . . .	106
Peripneumonia . . .	269		
Perspiration excessive . . .	145	Râles, account of . . .	41
Pertussis . . .	282	Rash, nettle . . .	137
Pharmacology . . .	54	Raving madness . . .	185
Pharyngeal cynanche . . .	303	Regular gout . . .	375
Pharynx, inflammation of . . .	303	Remittent fever . . .	115
Phlegmasia . . .	148	Respiration, varieties of . . .	38
Phrenitis . . .	149	Retention of the menses . . .	366
Phthisis . . .	274	Retrocedent gout . . .	375

	Page		Page
Rheumatism	368	Spinal irritation . . .	190
Rubeola	126	Spirits, low	184
Rhythm of heart . .	23	Spitting of blood . .	382
		Splenitis	365
Salacina	112	St. Anthony's fire . .	133
Salivary glands, diseases		St. Vitus's dance . .	178
of	305	Stethoscope, uses of .	40
Sanguineous apoplexy	162	— in diseases of the heart	191
Scarlatina	130	— in diseases of the lungs	40
Scarlet fever	130	— in diseases of the ear	43
Scorbutus	403	— in abscess of the liver	
Scrofula	401	— in fractures	43
Scurvy	408	— in utero-gestation .	42
Semeiotics	12	(See Auscultation.)	
Sensibility	6	Stomach, inflammation of	317
Serous apoplexy . .	162	— — — hæmorrhage from	385
Sickness, green . . .	366	Stomatitis	285
Signs of diseases . .	14—51	Succussion	46
Skin, diagnoses by . .	17	Sudor Anglicus	145
— actions of medicines		Surface, diagnosis by .	17
on	57	Swine-pock	126
— diseases of	139	Sympathy	7
— definitions of . .	140	Symptomatology . . .	12
— inflammation of .	140	Syncope	253
— neuroses of	144	— — — anginosa	257
— hæmorrhages . . .	143	Synergy	8
— decolorations . .	145	Synocha	73
— discolorations . .	145	Synochus	95
— excessive perspira-		— — — ieterodes	102
tion	145	System, nervous, diagno-	
— tumours of	146	sis by	19
— absence of	146		
— diseases of the ap-		Tabes	279
pendages of	146	Tænia	337
— of the nails	146	Tape-worm	337
— — — hair	146	Teeth, diagnosis by . .	16
Sleep, diagnosis by . .	14	Temperaments, signs by	49
Small-pox	119	Temperature, signs by .	49
Sore-throat, inflammatory	306	Tertian ague	105
— — — putrid	312	Tetanus	172
Sounds of the heart . .	22	Therapentics, definition of	51
Spasm, rigid	172	Throat, inflammation of	306
Spasmi	172	— — — inflammatory sore	306
Spasmodic diseases . .	172	— — — putrid sore . . .	312
Spina bifida	189	Thrush	288
Spinal diseases . . .	188	Tongue, diagnosis by . .	16
— effusion	190	Tonsillaris cynanche .	306

	Page		Page
Touch, diagnosis by . . .	17	Vacciola	124
Tracheal cynauche . . .	258	Vapours	186
Trichonosology	146	Varicella	126
Tricho-dermotaxopathy . .	147	Variola	119
Trichuris	337	Venenate paralysis . .	336
Trismus	172	Vermination	337
Tympanites	393	Vesicular fever	138
Tympany	393	Verminous colic	336
Typhus mitior	78	Voice, diagnosis by . . .	41
—— gravior	84	Volvulus	337
		Vomiting of blood . . .	385
Ureter, stone in	355		
Urinary calculus	355	Water in the belly . . .	397
Urine, immoderate flow of	364	——— the chest	399
—— bloody	390	——— the head	156
—— diagnosis by	48	Water-brash	324
Urticaria	137	Windy swelling	393
Utero-gestation, signs of .	42	Womb, inflammation of	
Uterus, hæmorrhage from .	388	the	337
—— inflammation of . . .	365	Worms	337
		Wounds of the heart . .	241
Vaccina	124		
Vaccination	124	Yellow fever	102

THE END.

LONDON

LEOTSON AND PALMER, PRINTERS, SAVOY STREET, STRAND.



